DISSERTATION

FOR THE AWARD OF DEGREE

MASTER OF SCIENCE

SESSION 2023-2025

RELATION BETWEEN STRESS AND GASTROINTESTINAL DISORDERS

By

ANKITA GURUNG

DEPARTMENT OF CLINICAL PSYCHOLOGY

SANTOSH DEEMED TO BE UNIVERSITY

NO. 1, SANTOSH NAGAR, GHAZIABAD-201009,

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LIST OF ABBREVIATION

S.NO	ABBREVIATION	FULL WORD
1.	GI	Gastrointestinal Disorder
2.	GHQ	General Health Questionnaire
3.	SDC	Somatization Disorder Checklist
4.	DASS	Depression, Anxiety and Stress Scale
5.	IPQ-R	Illness Perception Questionnaire – Revised

INTRODUCTION

CHAPTER 1

INTRODUCTION

Stress is a reaction to our everyday life experiences and pressures, but it can become unhealthy when it upsets our day-to-day functioning. It affects every system of our body that involve changes which influences how an individual feels and behaves. Stress contributes directly to psychological and physiological disorder and disease and affects mental and physical health, reducing quality of life, by disrupting mind body changes. It is the psychological, physiological and behavioural response by an individual when they perceive a lack of equilibrium between the demands placed upon them and their ability to meet those demands, which, over a period of time, leads to ill-health. **S. Palmer (1989)[1].**

Stress refers to the sensation of mental or bodily tension that arises in response to challenging situations or demands. It can be triggered by situations or thoughts that cause feelings of frustration, anger, or anxiety. Essentially, stress is the body's natural response to perceived challenges or demands. While brief episodes of stress can be beneficial helping us stay focused or respond quickly to danger prolonged stress can negatively impact our health(2).

We know that in everyday life we experience stress. Stress may occur frequently for some and rarely for others. Influencing factors include family, relationships, domestic responsibilities, education, job and career options, home and workplace environments, health issues, travel, and safety practices. Stress can manifest in varying intensities sometimes it feels overwhelming and intense, while other times it appears as a mild, manageable pressure. Some individuals manage

stress effectively, either by applying coping strategies independently or by seeking assistance

and support from others. For instance, collaborating with peers, seeking expert guidance, or applying relaxation techniques to manage their emotional responses. Tackling stress in project

execution often involves a combination of proactive problem-solving and emotional resilience. Whether it's digging into relevant literature, breaking tasks into manageable steps, or simply talking through challenges with a supportive team, these strategies help individuals stay focused and move forward with confidence when individuals face stress during a project's execution, they may overcome it by researching independently or seeking guidance and support.

Alternatively, Gastrointestinal (GI) disorders refer to various health issues that affect the organs involved in digestion, collectively known as the GI tract. This system consists of the oral cavity, esophagus, stomach, intestines (small and large), and rectum. Its primary functions are to break down food, absorb essential nutrients, and expel waste from the body. [3]

GI diseases may be classified based on duration and cause:

- Acute GI conditions arise suddenly and typically resolve within a short time.
- Chronic GI conditions persist over an extended period, often lasting for months or even years.

They can also be categorized by their nature:

- Functional GI disorders occur when no visible abnormalities are found in the digestive tract during medical examination.
- Structural GI disorders involve detectable physical changes or damage in the digestive system that can be observed during diagnostic tests.

Somatization is the process by which emotional or psychological distress manifests as physical symptoms is closely linked to gastrointestinal (GI) disorders. These conditions often show elevated levels of somatization and are typically associated with more intense and complex symptom patterns[4]. This connection indicates that somatization may shape how individuals

perceive and experience their GI symptoms. In this context, somatization represents the body's response to emotional strain, particularly stress, by expressing it through physical discomfort. It serves as a means for the body to signal underlying psychological distress [5]. It's a way for the body to communicate psychological distress through physical symptoms.

Somatization is also associated with mental health conditions such as anxiety and depression, which can both contribute to and result from stress. When stress-induced physical symptoms persist over time and lead to significant emotional distress or interfere with daily functioning, they may point to somatic symptom disorder a condition where physical complaints become the central focus and cause considerable psychological strain. [6-8]

Eustress and Distress

Eustress refers to a form of positive stress that arises in response to challenges or opportunities perceived as achievable and rewarding. It can boost energy, sharpen focus, and enhance motivation and performance. Common examples include the excitement of beginning a new job, the adrenaline of competing in a sports event, or the joyful anticipation of a major life milestone.[9]

Whereas, distress, in contrast, is negative stress triggered by situations that feel overwhelming or threatening. It often results in anxiety, fear, and discomfort, and can take a toll on both mental and physical well-being. Examples include financial strain, relationship conflicts, or serious health issues[10]. Eustress represents a positive form of stress that energizes and motivates individuals, whereas distress is the negative counterpart that overwhelms and depletes one's emotional and physical well-being. Effective stress management involves embracing the motivating aspects of eustress while reducing the damaging effects of distress[10].

Stressors and types of stressors

A stressor refers to any occurrence, condition, or outside trigger that initiates a physical or emotional stress reaction within the body [4]. Here's a structured breakdown of common types of stressors. Stressors differ widely among individuals because personal temperament, life experiences, and coping mechanisms shape how events are perceived and processed. What may be overwhelming for one person could be manageable or even inconsequential for another, depending on their emotional resilience and psychological framework.

Financial Stressors: Financial stressors involve the pressures and uncertainties related to money and economic stability. These can stem from rising living costs, mounting debt, or insufficient income. Individuals may also experience stress due to educational or healthcare expenses, lack of retirement savings, or the unpredictability of financial emergencies. Living paycheck to paycheck or facing economic downturns can create a constant sense of insecurity, significantly affecting both mental and physical health[11].

Physical Stressors: Physical stressors are environmental or bodily factors that place strain on the body and trigger a stress response. These can include exposure to environmental toxins, extreme temperatures, or natural disasters. Environmental stressors like noise or light pollution, nutritional gaps, illnesses, and physical strain weaken the body's resilience and overall wellness. Inadequate sleep and poor eating habits further reduce immunity, disrupt hormonal balance, and impair recovery. Poor diet and lack of sleep are also common physical stressors that can weaken the body's resilience and overall well-being[11].

Psychological Stressors: Psychological stressors disrupt a person's mental or emotional equilibrium. Psychological stressors tend to be individualized, shaped by one's unique experiences, coping style, and emotional strength. Typical examples include challenges like

academic demands, caregiving duties, bereavement, familial disputes, and significant life changes. Internal factors such as perfectionistic tendencies, worries about health, unresolved trauma, and persistent loneliness may also lead to psychological stress.[11]

Social Stressors: Social stressors arise from interpersonal relationships and societal expectations. These can include experiences like cyberbullying, discrimination, or social stigma. Life transitions that alter social roles—such as becoming a parent or retiring—can also be sources of stress. Relationship issues, peer pressure, and social isolation are common examples, as are workplace dynamics and the pressure to conform to societal norms [11].

Occupational Stressors: Occupational stressors relate to employment and may arise from multiple elements in the workplace. Common stressors can stem from workplace challenges such as uncertainty about job stability, inadequate salary, feeling undervalued, or facing restricted possibilities for professional growth. These factors often contribute to persistent tension and reduced morale in individuals. A high workload, poor leadership, unclear job expectations, and toxic workplace culture can all contribute. Additionally, challenges related to remote work, poor work-life balance, and workplace discrimination or harassment can significantly impact an individual's mental health[11].

Examples of stressors in the workplace may include concerns about career progression, unsatisfactory compensation, a difficult or toxic work atmosphere, excessive workload or burnout, insufficient incentives, limited chances for promotion or acknowledgment, uncertainty regarding job stability, minimal autonomy or decision-making power, and strained interpersonal relationships with colleagues or supervisors, poor work-life balance, remote work challenges, poor leadership, unclear job expectations, workplace bullying or harassment and workplace discrimination or inequality.

Life change stressors refer to impactful shifts or experiences—such as relocation, marriage, divorce, retirement, or the loss of a loved one—that demand considerable emotional resilience and practical adaptation. These events often disrupt routine and stability, requiring individuals to recalibrate their mental and daily functioning in response to new circumstances. These changes can be either positive or negative but often disrupt familiar routines and roles. Examples include marriage, divorce, the birth of a child, children leaving home, or the loss of a loved one. Other stress-inducing changes might include job loss, unemployment, or receiving a serious medical diagnosis. Even positive milestones can be stressful due to the demands of adaptation[11].

Types of Stress

In variety of situations, stress also differs in form maybe acute, episodic, sudden, Chronic, emotional & so on. Let us go through the types of stress –

Acute Stress : Acute stress is a short-term form of stress that arises suddenly and can temporarily disrupt an individual's mental balance. It often occurs in response to unexpected events but typically doesn't last long. While it can trigger physical symptoms, it is manageable with awareness and appropriate coping strategies. Techniques such as yoga, meditation, and other relaxation practices are commonly used across all age groups to help reduce the impact of acute stress and support overall well-being.[12]

Episodic Acute Stress : Episodic acute stress is characterized by recurring bouts of intense stress, where individuals regularly find themselves engulfed in pressure or turmoil. This pattern typically affects people with hectic lifestyles or those who take on too many responsibilities, leading to frequent emotional strain and a sense of being perpetually in crisis mode. Over time, this chronic cycle can impact mental and physical health if not managed proactively. This type of

stress can be mentally and physically draining and may negatively affect relationships due to increased irritability or unintended hostility. If left unaddressed, it can lead to health issues such as joint pain, cardiovascular problems, blood pressure fluctuations, and cognitive difficulties. Psychologically, it may result in anxiety, depression, and frustration. Managing this stress often requires lifestyle adjustments and the adoption of effective coping methods to restore balance and promote emotional health [12].

Chronic Stress : Chronic stress is a long-term form of stress that persists over time and can significantly impact both physical and mental health. Individuals experiencing chronic stress may suffer from conditions such as high or low blood pressure, joint pain, cardiovascular disease, anxiety, and depression. Over time, this can lead to burnout. Addressing chronic stress effectively involves a combination of short-term relief strategies and long-term coping techniques, including both emotion-focused and problem-solving approaches. These methods help individuals manage stress more efficiently and maintain productivity and emotional stability [12].

Emotional Stress : Emotional stress is often more severe and distressing than other forms of stress due to its deep psychological impact. It often stems from overwhelming work demands or strained personal relationships with family, friends, or colleagues. When severe, emotional stress can harm both physical and psychological health. To manage it, individuals should develop time management skills, maintain healthy interpersonal relationships, and understand the strategies needed to perform well in both personal and professional settings. Building mutual understanding and fostering positive connections are key to reducing emotional stress. [(12)].

Physical Stress : Physical stress affects individuals' physical health and can arise from numerous sources such as illness, injury, infections, environmental discomforts (like poor lighting or lack

of electricity), fatigue, nutritional deficiencies, unhealthy eating, dehydration, and substance misuse. Dental problems and musculoskeletal issues also contribute. To manage physical stress effectively, people can adopt relaxation techniques which help maintain their productivity and well-being. In addition to seeking medical care, promoting health requires regular check-ups, proper nutrition, physical activity, good communication, and creating supportive home and work environments. Practices like yoga, meditation, breathing exercises, cognitive reframing, and progressive muscle relaxation significantly aid in managing and preventing severe physical stress [12].

Psycho- social stress : Building social connections is vital, as people cannot thrive in isolation. Improving one's quality of life often requires collaboration and support from others. Whether at home with family or in schools, workplaces, and communities, fostering mutual understanding and maintaining positive relationships is essential for achieving shared goals. However, when relationships become strained, they can lead to psychosocial stress, which affects both physical and mental well-being. To manage this form of stress, individuals should practice open communication and mutual understanding. Cultivating qualities like helpfulness, cooperation, and empathy plays a key role in easing psychosocial stress and protecting overall health. [12]

Psycho- spiritual Stress : Psycho-spiritual stress occurs when individuals struggle to live in alignment with their personal values, beliefs, or ethical standards. This often happens in academic or professional settings where individuals are expected to demonstrate diligence, integrity, and moral responsibility. When they face obstacles in upholding these principles, it can lead to inner conflict and stress. The most effective way to manage psycho-spiritual stress is by cultivating strong determination and a clear sense of purpose, allowing individuals to stay grounded in their values despite external challenges. [12]

STRESS AND GI DISORDER

Stress can lead to various digestive issues such as stomach cramps, bloating, and reduced appetite. This is due to the close and continuous interaction between the brain and the gut. Remarkably, research highlighted in the book Neuroscience reveals that the gut contains more neurons than the spinal cord.

"Stress can affect every part of the digestive system," says Kenneth Koch, MD, professor of medicine in Gastroenterology at Wake Forest University Baptist Medical Center in Winston-Salem, North Carolina. [13]

When faced with a potentially threatening situation, the sympathetic nervous system a branch of the autonomic nervous system responsible for regulating functions such as heart rate, breathing, and blood pressure activates the "fight-or-flight" response. This leads to the release of the stress hormone cortisol, which prepares the body to respond to the threat. As a result, stress induces several physiological changes, including increased alertness, rapid breathing, accelerated heart rate, elevated blood pressure, higher blood cholesterol levels, and greater muscle tension.

Immediate Effects from Fight-or-Flight Activation:

- Esophagus may spasm
- Stomach acid increases, leading to indigestion
- Nausea becomes more frequent
- Bowel movements may shift to diarrhea or constipation [13]

Exacerbation of GI Disorders:

- Inflammatory Bowel Disease (IBD)
- Irritable Bowel Syndrome (IBS)

- Gastroesophageal Reflux Disease (GERD
- Peptic ulcers

Irritable Bowel Syndrome (IBS)

A prospective cohort study involving nearly 600 individuals who developed gastroenteritis from the bacterium Campylobacter revealed that a person's stress resilience prior to infection played a key role in whether they later developed IBS. Participants who reported higher levels of stress, anxiety, and negative beliefs about illness at the time of infection were more likely to develop IBS. Interestingly, traits such as depression and perfectionism did not appear to significantly influence the risk of developing the condition.[13]

Inflammatory Bowel Disease (IBD)

In conditions like Crohn's disease and ulcerative colitis, research has shown that chronic stress, major life stressors, and depression may contribute to disease flare-ups. The study highlighted several biological pathways through which stress can impact both the immune system and inflammatory responses in the gut. However, while these findings suggest a strong link between stress and IBD activity, translating them into effective stress-reduction treatments has proven difficult. Clinical trials testing current stress management techniques have not yet yielded consistently positive outcomes for IBD patients.[13]

Peptic Ulcer Disease (PUD)

Most peptic ulcers are primarily caused by an infection with Helicobacter pylori (H. pylori), not by spicy foods or a high-stress lifestyle as once believed. The bacteria weaken the mucous barrier of the stomach, esophagus, or duodenum, letting acid harm tissue and cause ulcers.. That

said, some studies suggest that chronic stress may contribute to inflammation of the mucosal lining, making it more vulnerable to irritation from gastric acids.[13]

Gastroesophageal Reflux Disease (GERD)

Research conducted at a women's health medical center found that acute stress did not increase the frequency of acid reflux episodes. However, individuals with chronic anxiety were more likely to perceive their symptoms as more severe during stressful periods. This suggests that psychological factors, particularly one's mindset or emotional state, can influence how intensely GERD symptoms are experienced even if the physical reflux itself remains unchanged.[13]

General Adaptation Syndrome (GAS) Model of Stress:

Stress and the Body's Response: General Adaptation Syndrome (GAS) Stress is a normal part of life, and while we can't eliminate every source of stress, we can learn to manage it in ways that protect our well-being. Managing stress is crucial because prolonged exposure can lead to mental exhaustion, irritability, and sleep disturbances. Even though many people are aware of the physical toll stress can take, they may not be familiar with the body's process of responding to stress, known as the General Adaptation Syndrome (GAS) [14].The concept of GAS was introduced by physician and researcher Hans Selye, who observed a predictable pattern of physical changes in lab rats subjected to stressful conditions during his experiments at McGill University in Montreal. His findings led him to conclude that these responses were not unique to the rats but were part of a universal stress response.[14]

Hans Selye's research revealed that the body's reaction to stress follows a consistent pattern, not just a rare occurrence. He described this process in three phases: alarm, resistance, and exhaustion. Gaining insight into how these stages connect can offer useful strategies for handling stress more effectively. [14]

General adaptation syndrome stages:

1. Alarm Reaction Stage

In the alarm stage, the body rapidly responds to stress by triggering the "fight-or-flight" reflex. This involves the release of stress hormones like adrenaline, a spike in heart rate, and sharpened senses—all designed to help you react quickly to danger or challenge. This triggers the release of stress hormones like adrenaline, sharpens focus, and increases heart rate—gearing the body up for immediate action or escape. This involves a surge of adrenaline, elevated heart rate, and heightened alertness—all priming you to face the challenge head-on. This is when the well-known "fight-or-flight" mechanism kicks in—a built-in survival response that prepares us to either confront or escape a threat. During this phase, the heart rate speeds up, adrenaline surges, and the adrenal glands release cortisol, the primary stress hormone. These physiological changes provide a burst of energy and heightened alertness, helping the body respond quickly to danger. This heightened state of readiness is characteristic of the alarm reaction stage.[14]

2. Resistance stage

Once the initial shock has passed, the body begins to stabilize. During this recovery phase, the body begins to stabilize—cortisol decreases, and vital signs like heart rate and blood pressure begin to regulate. Even though the body shifts toward healing, it stays vigilant, prepared to respond if the stressful situation continues or reappears. This careful balance helps the body conserve energy while remaining alert to potential threats.. If the stressful situation is resolved, the body gradually returns to its baseline state. When stress continues, the body maintains an ongoing alert state, gradually adapting to prolonged pressure. This response can be subtle, yet it includes ongoing release of stress hormones like cortisol and a consistent rise in blood pressure. While this helps the body cope in the short term, over time it can strain physical health and

emotional well-being if the pressure isn't managed. People may feel like they're coping well, but internally, the body is still under strain. Extended time in the resistance phase, especially without proper recovery, may push the body into the exhaustion stage where physical and mental resources become depleted. During resistance, typical symptoms include irritability, growing frustration, and a noticeable drop in concentration or mental clarity. These signs reflect the strain of staying in a prolonged high-alert state, even if the body seems to be managing the stress outwardly.

3. Exhaustion Stage

Once stress continues over time, the exhaustion stage occurs—where the body's energy stores are depleted and resilience breaks down. After enduring prolonged stress, both physical and emotional reserves are drained, leaving the individual feeling overwhelmed and powerless. Symptoms of this stage include fatigue, burnout, anxiety, depression, and a reduced ability to handle stress. Reduced immunity from this decline increases the risk of infections and various health complications. Long-term exposure to this stage can result in serious health consequences, such as high blood pressure, heart disease, stroke, and a greater risk of infections and cancer [(14)]

This phase's physical impact lowers immunity and increases vulnerability to illnesses linked to stress [14] . GAS may develop from physical, emotional, or environmental stress of any kind. It can include stressful events like:

- Losing employment or facing career disruption
- Experiencing health-related challenges
- Struggling with economic difficulties
- Coping with the collapse of family relationships
- Dealing with emotionally distressing or traumatic situations

Though stress feels unpleasant, GAS helps the body better handle stress especially in the alarm stage.

The fight-or-flight response activated during the alarm stage serves as a protective mechanism. Elevated hormone levels at this point are actually beneficial—they boost energy levels and sharpen focus, enabling us to respond effectively to immediate challenges. When stress is short-lived, this phase doesn't negatively affect the body [14], as the system quickly returns to balance after the threat subsides.

However, the situation changes with prolonged stress. Prolonged stress exposure can negatively impact overall health. Remaining in the resistance stage without adequate rest increases the likelihood of progressing to the exhaustion stage, where the body's coping abilities begin to fail. At this point, the body's ability to cope becomes depleted, and the risk of serious health issues rises. Persistent stress in the exhaustion stage may result in serious issues like hypertension, cardiovascular disease, strokes, and depression. Additionally, the immune system becomes compromised, making the body more susceptible to infections and even increasing the risk of cancer. [14]

Hypothalamic-Pituitary-Adrenal (HPA) axis:

Stress is a natural response to everyday life challenges and pressures, but it can become harmful when it disrupts normal functioning and negatively impacts mental and physical health. It influences how individuals think, feel, and behave by affecting multiple systems in the body. Chronic stress contributes to psychological and physiological disorders, reducing quality of life through disruptions in mind–body balance. Individuals experience stress for various reasons, such as family issues, relationships, education, employment, health problems, environmental conditions, and significant life changes. While some can manage stress effectively through

coping strategies or external support, others may face difficulty. Stress is either eustress, which is uplifting and motivating, or distress, which is harmful and overwhelming. Stressors the events or conditions that trigger stress can be financial, physical, psychological, social, occupational, or related to major life changes. Gastrointestinal (GI) disorders, which affect the digestive system, can be either acute or chronic, functional or structural. A strong connection exists between stress and GI disorders, particularly through the process of somatization, where emotional distress manifests as physical symptoms. This is especially evident in functional disorders like irritable bowel syndrome (IBS), where patients often report heightened levels of stress, anxiety, and depression. Persistent stress-related symptoms can lead to further health complications, such as somatic symptom disorder, highlighting the importance of addressing both the psychological and physiological aspects of health. [15-16]

Research on the HPA axis and stress response in India is actively exploring the link between stress, the HPA axis (Hypothalamic-Pituitary-Adrenal axis), and various health outcomes, particularly in the context of chronic stress and its impact on conditions like depression, anxiety, and metabolic disorders. Studies are investigating how early-life stress, lifestyle factors, and genetic predispositions influence HPA axis function and cortisol levels, and how these factors contribute to the development of stress-related diseases in the Indian population. [17]

Early-life stress & lifelong HPA dysregulation: “The role of early life stress in HPA axis and anxiety” shows that childhood adversity alters HPA functioning in adulthood, increasing baseline cortisol, impairing feedback inhibition, and heightening anxiety and relapse risk in mood disorders. Early-life stress (e.g. neglect, abuse) is linked to long-term HPA dysregulation including altered cortisol awakening response and increases susceptibility to mood, anxiety, and psychotic disorders. [18,19]

Chronic stress – CRH activation alters serotonin receptor profiles glucocorticoid receptor desensitization, and pro-inflammatory cytokine release all of which feed back to further activate the HPA axis and promote anxiety/depression/stress.[20]

Stress is a natural reaction to the demands and challenges of daily life, but it can become detrimental when it interferes with normal functioning and harms both mental and physical well-being. It affects thoughts, emotions, and behaviors by influencing various bodily systems. When stress becomes chronic, it can lead to a range of psychological and physical health issues, disrupting the balance between mind and body and diminishing overall quality of life. People may experience stress due to numerous factors, including family dynamics, personal relationships, academic or work-related pressures, health concerns, environmental stressors, and major life transitions. While some individuals are able to manage stress through effective coping mechanisms or external support, others may struggle to do so. Stress can be classified into two types: eustress, which is beneficial and motivating, and distress, which is overwhelming and harmful. The sources of stress known as stressors can be financial, emotional, physical, social, occupational, or linked to significant life events.

Gastrointestinal (GI) disorders, which involve the digestive tract, may be short-term or long-lasting, and can be either functional (without visible structural abnormalities) or structural (with identifiable physical changes). There is a well-established link between stress and GI disorders, particularly through somatization, where psychological distress is expressed through physical symptoms. This connection is especially prominent in functional conditions like Irritable Bowel Syndrome (IBS), where individuals frequently report elevated levels of stress, anxiety, and depression. If left unaddressed, ongoing stress-related symptoms can escalate into more complex conditions such as somatic symptom disorder, emphasizing the need to treat both the mental and physical dimensions of health.

OPERATIONAL DEFINITIONS:

Stress: Stress is the physiological or psychological response to internal or external stressors. Stress involves changes affecting nearly every system of the body, influencing how people feel and behave. It can be acute or chronic, and can either support adaptation or contribute to health problems when prolonged.

Gastrointestinal disorders: Gastrointestinal (GI) disorders refer to a broad range of conditions that affect the gastrointestinal tract, which includes the esophagus, stomach, small intestine, large intestine (colon), rectum, and accessory organs like the liver, pancreas, and gallbladder. These disorders may be functional (with no visible structural abnormalities) or organic (with identifiable structural or biochemical abnormalities), and they often manifest as symptoms like abdominal pain, bloating, nausea, diarrhea, constipation, and heartburn.

General Health: General health refers to the overall state of physical, mental, and social well-being of an individual, not merely the absence of disease or infirmity.

Somatization: Somatization is the tendency to experience and communicate psychological distress through physical symptoms and to seek medical help for them, in the absence of a fully explained medical condition.

Depression: Depression is a common and serious medical illness characterized by persistent feelings of sadness, emptiness, or irritability, accompanied by cognitive and physical symptoms that impair daily functioning.

Anxiety: Anxiety is an emotion characterized by excessive worry, nervousness, or fear that is disproportionate to the actual threat and may be persistent enough to interfere with daily activities or well-being.

Illness Perception: Illness perception refers to the organized set of beliefs and emotional responses that a person has about their illness, including its cause, timeline, consequences, controllability, and identity.

RELEVANCE OF THE STUDY:

Growing awareness of the impact of psychological stress on gut health has made studying the link between stress and gastrointestinal disorders increasingly important. Stress influences the brain-gut axis through neural, hormonal, and immune mechanisms, affecting digestion and potentially leading to inflammation, altered bowel habits, and imbalance in gut bacteria. These effects can intensify conditions such as IBS, IBD, GERD, and peptic ulcers. The relationship is also bidirectional ongoing digestive issues may worsen psychological distress, forming a reinforcing cycle. The gut-brain axis a two-way communication system between the central and enteric nervous systems illustrates how stress can disrupt digestive processes by altering gut motility, increasing intestinal permeability, and impacting the gut microbiota. These changes can contribute to or worsen conditions such as Irritable Bowel Syndrome (IBS) and Inflammatory Bowel Disease (IBD), which are frequently linked to psychological stress. Understanding this connection supports a more holistic approach to treatment, combining medical therapies with psychological interventions like stress management, psychotherapy, or mindfulness. Recognizing stress as a contributing factor also allows for earlier diagnosis and more personalized care, reducing the need for trial-and-error treatment. On a broader scale, this research has public health implications, as it highlights the importance of stress reduction in preventing or managing common GI disorders. Overall, exploring this link enhances our understanding of disease mechanisms, improves patient outcomes, and supports integrated and preventive healthcare strategies.

AIM AND OBJECTIVES

CHAPTER 2

AIM AND OBJECTIVE

Aim of the study:

- To find the relation between individuals stress level with general health, depression, anxiety, somatization and illness perception among patients with gastrointestinal disorders

Objective of the study:

- To assess the correlation of stress with general health, depression, anxiety, somatization and illness perception among patients with gastrointestinal disorders

REVIEW OF LITERATURE

CHAPTER 3

REVIEW OF LITERATURE

Review of literature entails an extensive investigation and examination of the available literature on the subject to develop a working hypothesis. These literature shows how stress affects human body in several ways affecting our daily life functioning both physically and psychologically.

Selye (1956) used the term "stress" to represent the effects of anything that seriously threatens homeostasis. The actual or perceived threat to an organism is referred to as the "stressor" and the response to the stressor is called the "stress response." Although stress responses evolved as adaptive processes, Selye observed that severe, prolonged stress responses might lead to tissue damage and disease. [21]

Gorge Engel (1970) advanced his biopsychosocial model of disease causation, and provided the framework for the integration of the body, mind and social environment. The past three decades have seen a rapid advancement in our knowledge of how stress affects the gastrointestinal (GI) tract, with the focus now on the concept of the brain gut axis, central stress circuitry, emotional motor system, modulation of visceral sensitivity, changes in hypothalamic pituitary adrenal responses, brain mapping and the role of stress in both organic and functional bowel disorders.[22]

Lazarus and Folkman (1984) provide a transactional cognitive component to stress with their concept of appraisal, which indicates that individuals only perceive stress when a challenge or event is both threatening and of such a nature that the individual is unable to cope. In this viewpoint, objective demands and subjective appraisals may differentially impact health counseling. It is important to note, however, that some stressors may be appraised as positive.[23]

Walker, et .al. (1993) There is also a strong association between parental psychological status, particularly anxiety, depression, and somatization, and children's abdominal symptoms. This

association could be occurring through modelling children observing and learning to display the behaviours they observe, in this case, possibly heightened attention to, or catastrophizing about, somatic sensations. However, the effect of parental traits on children's symptoms could also occur through reinforcement.[24]

Jarrett, M.et al (1998)- To examine psychological distress in women with IBS, women with similar GI symptoms but not diagnosed (IBS nonpatients, IBS-NP), and asymptomatic Control women. The IBS and IBS-NP groups had a higher percentage of lifetime psychopathology and recalled psychological distress. At least 40% of the women in the IBS and IBS-NP groups had positive relationships between daily psychological distress and daily GI symptoms. Psychological distress is an important component of the IBS symptom experience and should be considered when treatment strategies are designed.[25]

Bhatia. V & Tandon. R.K (2005) Stress is an acute threat to the homeostasis of an organism, be it real (physical) or perceived (psychological). It evokes adaptive responses that serve to defend the stability of the internal environment and to ensure the survival of the organism. However, activation of these adaptive or allostatic systems can become maladaptive because of frequent, chronic or excessive stress and lead to a predisposition to disease.[26]

Hui et al.(2005) Found that the number of positive and negative life events were similar in both subjects with dyspepsia and control subjects, but the former had a higher negative perception of major life events and daily stresses.[27]

Schmulson, M.(2010) There were higher proportions of women with IBS (67.8%) and dyspepsia (85.4%) compared with the control group (55.9%) ($P<0.001$). In IBS, women more frequently reported changes in the number of bowel movements (BMs) associated with the onset of abdominal discomfort/pain, fewer than three BMs/week and abdominal

fullness/bloating/swelling than men. Men with IBS more frequently reported swallowing air to belch and abdominal pain that improved after a BM than women. In controls, burping and hard or lumpy stools were both more frequent in men.[28]

Nabavizadeh (2011) demonstrated that physical and psychological stress increase gastric acid and pepsin secretions possibly by raising the gastric tissue nitric oxide level. In return, the increased gastric acid and pepsin secretions cause necrotic and inflammatory changes in the gastric and duodenal tissue.[29]

Harrell, et al. (2016) Stress can be described as a state of disturbed homeostasis due to a physical, mental or emotional factor causing various somatic and mental adaptive responses. The key function of the stress response system is to promote survival by coordinating behaviour and freeing energy for immediate use by releasing the body's energy reserves and inhibiting energy-intensive processes that are not essential for immediate survival.[30]

Edman, JS. (2016) Stress broadly correlated with QOL characteristics in patients with GERD, IBS, and IBD, and their overall QOL was significantly lower than the general population. Research supports relationships between stress and gastrointestinal (GI) symptoms and disorders. In this study, Stress positively correlated with depression, fatigue, sleep disturbance, average pain, and worst pain.[31]

Edman, J.S et al (2016) Given associations between stress, and gastrointestinal (GI) symptoms and disorders, this pilot study assesses relationships between perceived stress, quality of life (QOL) and self-reported pain ratings as an indicator of symptom management in patients who self-reported gastroesophageal reflux disease (GERD), irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD). In a sample of GI patients (n=402), perceived stress positively correlated with depression ($r=0.76$, $p<0.0001$), fatigue ($r=0.38$, $p< 0.0001$), sleep

disturbance (r=0.40, p<0.0001), average pain (r=0.26, p<0.0001) and worst pain (r=0.25, p< 0.0001). Higher perceived stress also correlated with lower mental health-related QOL. Assessed in subgroups, similar correlations were found for the participants with GERD (n=188), IBS (n=132) and IBD (n=82). Finally, there were significant correlations within both the GERD and IBD cohorts between perceived stress, and average pain (r=0.34, p<0.0001; r=0.32, p<0.0001respectively) and worst pain (r=0.29, p<0.0001; r=0.35, p<0.01respectively). Perceived stress broadly correlated with QOL characteristics in patients with GERD, IBS, and IBD, and their overall QOL was significantly lower than that of the general population. Perceived stress also appeared to be an indicator of symptom management (self-reported pain ratings) in GERD and IBD, but not IBS. Future research is needed using objective measures of stress and symptom/disease management to confirm these associations, and to prospectively evaluate the ability of stress reduction interventions to improve perceived stress, QOL and disease management in these GI disorders; integrative medicine treatment programs that simultaneously target such multiple symptoms may be particularly beneficial to study.[32]

Staudacher. H.M & et.al (2017) – IBS affects 5–10% of the global population at any one time10,11 and is more common among females than males. However, prevalence rates vary considerably between countries and cultures.[33]

Edman, J.S, et.al (2017) Research supports relationships between stress and gastrointestinal (GI) symptoms and (QOL), and self-reported pain ratings as an indicator of symptom management in patients who self-reported gastroesophageal reflux disease (GERD), irritable bowel syndrome (IBS), and inflammatory bowel disease (IBD). Perceived stress broadly correlated with QOL characteristics in patients with GERD, IBS, and IBD, and their overall QOL was significantly lower than the general population. Perceived stress also appeared to be an indicator of symptom management (self-reported pain ratings) in GERD and IBD, but not IBS.

While future research using objective measures of stress and symptom/disease management is needed to confirm these associations, as well as to evaluate the ability of stress reduction interventions to improve perceived stress, QOL and disease management in these GI disorders, integrative medicine treatment programs would be most beneficial to study.[34]

Roohafza, H. Et all (2017) Psychiatric disorders are common in irritable bowel syndrome (IBS). They conducted this study to investigate the relationship of IBS and their subtypes with some of psychological factors. A high prevalence of anxiety-depressive symptoms and distress in our subjects, sex, and subtype of IBS had remarkable distributional differences among studied groups, emphasize the importance of the psychological evaluation of the patients with IBS, in order to better management of the patients and may also help to reduce the burden of health care costs.[35]

Harvard.H (2019) This "brain-gut axis" helps explain why researchers are interested in understanding how psychological or social stress might cause digestive problems. When a person becomes stressed enough to trigger the fight-or-flight response, for example, digestion slows or even stops so that the body can divert all its internal energy to facing a perceived threat. In response to less severe stress, such as public speaking, the digestive process may slow or be temporarily disrupted, causing abdominal pain and other symptoms of functional gastrointestinal disorders. Of course, it can work the other way as well: persistent gastrointestinal problems can heighten anxiety and stress.[36]

Balmus.I (2019) Stress in college students during stressful conditions, as compared to lesser demanding periods. Similarly, more than 40%of the participants declared that gastrointestinal habits changes occurred during stressful periods. We observed significant correlations between the perceived stress levels and gastrointestinal habits changes.[37]

Kiuntke, J.S. et all (2021) - Irritable bowel syndrome (IBS) is a common gastrointestinal disorder and causes considerable individual burden, restrictions in quality of life and high direct and indirect costs for the society. Affected patients suffer from abdominal pain and discomfort, as well as changes in stool frequency and consistency, such as diarrhoea and constipation. In former times, the standard dogma was, that in IBS no somatic correlates or changes exist, which are detectable with clinical routine methods. This led to the term "functional disease". However, during the last two decades, there is profound evidence for changes in gut permeability, motility and sensitivity, as well as multidirectional interactions between gut, brain and microbiome as pathogenic components of IBS. A high degree of comorbidity with further "functional" (e.g. dyspepsia in>20%, fbromyalgia>30%, chronic pelvic pain > 50%), as well as psychiatric diagnoses (e.g. depression, anxiety in~50% is well established. The high proportion of patients suffering from IBS and at least one further diagnosis, as well as a dysfunctional illness representation may contribute to the high degree of health care utilisation, which is reported to be associated with IBS.[38]

Schaper, S.J and Stengel, A (2021)- Irritable bowel syndrome (IBS) is a highly prevalent disorder of the gut-brain interaction characterized by abdominal discomfort and pain associated with altered bowel habits in the absence of structural abnormalities. Chronic psychological stress is considered a risk factor for the development of IBS. The multifactorial pathogenesis involves complex interactions between biological, psychological and social factors, yet the underlying mechanisms have not been fully understood. A total of 37 case-control studies were included in the narrative synthesis. Findings comprised subjective changes in emotion (k = 18) and of gastrointestinal symptoms (k = 8) as well as objective parameters of gastrointestinal motility (k = 10), autonomic nervous system (k = 23), hypothalamic-pituitary-adrenal axis (k = 11), functional

brain activity (k = 7) and immune system (k = 3). Mental stress was found to increase IBS-specific symptomatology and alter gastrointestinal motility. Some patients with IBS showed stress-induced emotional hyperresponsivity and different patterns of neural activation. Autonomic and endocrine stress responses depend on the type of stressor and showed no clear evidence of differential reactivity, partly due to confounding factors. Data on acute immunological changes remains sparse and requires further investigation. In Conclusions: Current evidence suggests altered stress reactivity in patients with IBS however, it remains unclear whether it can be attributed to the syndrome itself or the high prevalence of psychiatric comorbidities.[39]

Yan.L, et.al (2023) A literature search was conducted using the PubMed, Embase, Web of Science, and Cochrane Library databases from January 2018 to August 2022 for researches on psychological factors affecting patients with functional gastrointestinal disorders. Meta-analysis was carried out with Stata17.0 after the screening, extraction, and evaluation of article quality. There is a significant association between psychological factors and FGIDs. Interventions such as anti- anxiety drugs, antidepressants, and 27ounseling27 therapy are of great clinical significance in reducing FGIDs risk and improving prognosis.[40]

Leigh, S.J, et.al (2023) – Psychological disorders have been associated with irritable bowel syndrome (IBS) for decades in the absence of other objective etiology. However, such associations are also evident in other chronic diseases with more clearly defined pathogenesis such as ulcerative colitis. In this study, we examined the prevalence and severity of psychological disorders among IBS and ulcerative colitis (UC) patients relative to healthy controls.[41]

American Psychological Association (2023) – Chronic stress, or a constant stress experienced over a prolonged period of time, can contribute to long-term problems for heart and blood vessels. The consistent and ongoing increase in heart rate, and the elevated levels of stress hormones and of blood pressure, can take a toll on the body. This long-term ongoing stress can increase the risk for hypertension, heart attack, or stroke. Stress especially affects people with chronic bowel disorders, such as inflammatory bowel disease or irritable bowel syndrome. This may be due to the gut nerves being more sensitive, changes in gut microbiota, changes in how quickly food moves through the gut, and/or changes in gut immune responses.[42]

Yan, Liyanran.et al (2023)- To systematically re-evaluate the role of psychological factors in functional gastrointestinal disorders (FGIDs) and thus provide a scientific basis for the psychological treatment of FGIDs. The search included 22 articles with 2430 patients in the FGIDs group and 12,397 patients in the healthy controls. Meta-analysis showed anxiety [(pooled SMD = 0.74, 95%CI: 0.62 ~ 0.86, $p < 0.000$) (pooled OR = 3.14, 95%CI: 2.47 ~ 4.00, $p < 0.000$)], depression [(pooled SMD = 0.79, 95%CI: 0.63 ~ 0.95, $p < 0.000$) (pooled OR = 3.09, 95%CI: 2.12 ~ 4.52, $p < 0.000$)], mental disorders (pooled MD = -5.53, 95%CI: -7.12 ~ -3.95, $p < 0.05$), somatization (pooled SMD = 0.92, 95%CI: 0.61 ~ 1.23, $p < 0.000$), and sleep disorders (pooled SMD = 0.69, 95%CI: 0.04 ~ 1.34, $p < 0.05$) are risk factors for functional gastrointestinal disorders. In conclusion, there was a significant association between psychological factors and FGIDs. Interventions such as anti-anxiety drugs, antidepressants, and 28ounseling28 therapy are of great clinical significance in reducing FGIDs risk and improving prognosis.[43]

Singh , A. Et.al (2024) Patients with GI disorders are susceptible to psychiatric co-morbidities. It aimed to ascertain the burden of anxiety, depression, and stress in patients with GI disorders. The prevalence of anxiety, depression and moderate to high stress was 14%, 12%, and 41%,

respectively. Females had higher mean perceived stress, anxiety and depression scores compared to males. Where, patients experienced low stress (58.5%), 36.5 % experienced moderate level of stress and 5% experienced high level of stress.[44]

MATERIALS AND METHODS

CHAPTER 4

MATERIALS AND METHODS

A research methodology provides a comprehensive overview of the investigation, outlining how it was designed, how sampling procedures and strategies are implemented, what the expected results are that will validate the results of this exercise, and what steps are being taken into consideration.

RESEARCH QUESTION?

How does stress impact patient with gastrointestinal disorder?

GAP ANALYSIS:

Research on the link between stress and GI disorders has some missing pieces. Many studies show a connection but do not explain how stress causes these issues, it is unclear to what extent GI disorders cause psychological stress or vice versa. Most research does not include people from different backgrounds, and it often ignores differences between short-term and long-term stress. Psychosomatic symptoms also serve as a critical link between stress and gastrointestinal disorder, understanding this relationship can lead to more holistic and effective treatment strategies that address both mind and the body. In the Indian context, It also does not fully explore how conditions like stress, anxiety or depression make GI problems worse or how stress affects men and women differently. Filling these gaps can help us better prevent and treat stress-related GI issues.

HYPOTHESIS

Null Hypothesis (H0): There is no significant correlation between the level of stress with general health, somatization, depression, anxiety and illness perception among patients with Gastrointestinal disorder.

Alternate Hypothesis (H1): There is a significant correlation between the level of stress with general health, somatization, depression, anxiety and illness perception among patients with Gastrointestinal disorder.

STUDY DESIGN:

This research employed a cross-sectional study design to investigate the Corelation between stress and Gastrointestinal disorders.

SAMPLE SIZE:

The sample size was calculated on the basis of prevalence rate 5% at 95% confidence interval and 5% of all human error. The formula employed for sample size calculation resulting in a total of 73 subjects.

COLLECTION METHOD:

This study uses purposive sampling to select participants based on specific standards to accurately represent the intended group.

INCLUSION CRITERIA:

- Participants between the 18 to 65 years of age. Those participants and their parents who will give informed consent.
- Patients diagnosed with IBS, IBD, Peptic ulcers and GERD

EXCLUSION CRITERIA :

- Participants who have history of any significant physical illness.
- Patients/ family members those who do not provide informed consent.

TEST MEASURES:

After completing the consent form (Annexure I), preliminary identification data sheet(Annexure III), the following standardized test measures was administered:

1) General Health Questionnaire(GHQ) - 12

2) Somatization Disorder Checklist (SDC)

3) Depression, Anxiety and Stress Scale (DASS – 42)

4) Illness Perception Questionnaire- Revised (IPQ – R)

CONSENT FORM (Annexure I)

This study uses a consent form to ensure ethical standards and voluntary partcipaton, providing with details about the study's goals, methods and risks. This consent form is in both languages Hindi and English.

PRELIMINARY IDENTIFICATION DATA SHEET (Annexure II)

After the consent form preliminary identification data sheet was filled up which was also developed exclusively for this study purpose .The preliminary identification data sheet comprises of questions related to socio-demographic details, family details and educational details of the subject or samples.

TOOLS USED :

1) GENERAL HEALTH QUESTIONNAIRE (GHQ)

The General Health Questionnaire (GHQ-12) is a widely used self-administered screening tool for identifying psychiatric disorders and assessing general mental health. Originally developed by David Goldberg in 1972, the GHQ is available in various versions, including GHQ-60, GHQ-30, GHQ-28, and GHQ-12. The GHQ-12, which contains 12 items, is particularly popular due to its brevity and effectiveness. It measures symptoms related to depression, anxiety, social dysfunction, and confidence loss, making it applicable for both clinical and research settings. The GHQ-12 demonstrates high reliability, with Cronbach's alpha generally exceeding 0.80, and is validated across diverse cultural contexts. It can be administered individually or in groups, typically requiring 5-10 minutes to complete. Scoring can follow a binary (0-0-1-1) or Likert-type (0-1-2-3) method, with higher scores indicating greater psychological distress. Cut-off scores help categorize the severity of mental health symptoms, providing a quick yet effective mental health assessment suitable for large populations.

2) SOMATIZATION DISORDER CHECKLIST (SDC):

The Somatization Disorder Checklist was developed by Dr Rani Srivastava and Dr Niharika Arora in 2017. This checklist based on 3 scale rating scale was developed compromising of 18 questions. Somatization Disorder refers to a mental health condition in which a person experiences multiple, recurring physical symptoms that cannot be fully explained by a medical condition, causes significant distress or disruption in daily life and are often linked to psychological factors. Thus, this test was developed to measure the conditions of the patients.

3) DEPRESSION, ANXIETY AND STRESS SCALE (DASS – 42):

Depression, anxiety and stress scale is a self-report scale developed by Lovibond and Lovibond in 1995. As the name suggests, this scale measures negative emotional state of depression, anxiety and stress. The scale consists of 42 items and is rated on 4 point likert scale. Adjacent to each item are given numbers 0, 1, 2, 3, which indicate, did not apply to me at all, some of the time, good part of the time and most of the time, respectively. This scale has high internal consistency which is indicated through the Cronbach's alpha. Cronbach alpha for the DASS Depression, Anxiety, and Stress subscales were reported to be 0.97, 0.92, and 0.95, respectively.

4) ILLNESS PERCEPTION QUESTIONNAIRE (IPQ – R):

The **Illness Perception Questionnaire-Revised (IPQ-R)** is a **psychological assessment tool** designed to evaluate how individuals **perceive and emotionally respond** to their illness. It is based on **Leventhal's Self-Regulation Model** of illness, which posits that people's beliefs about their illness significantly influence their coping strategies and health outcomes. The IPQ-R helps clinicians, researchers, and health psychologists understand, how a patient views their illness, the emotional and cognitive impact of the illness and beliefs that may affect treatment adherence, coping, and recovery.

Statistical Analysis: The data collected was subjected to statistical analysis using SPSS-23. The following statistical operations have been used: Mean and standard deviation were used to calculate. Correlation analyses have been done using Pearson correlation for both the groups individually in order to assess relationship between, general health and psychological wellbeing, mental health, ad depression, anxiety and stress.

RESULTS

CHAPTER 5

RESULTS

Table 1. Showing Gender of the Samples

Total (*N*=73)

Gender	Frequency	Percent
Female	40	54.8%
Male	33	45.2%
Total	**73**	**100.0%**

Figure 1. Showing Gender-wise Distribution of the Samples

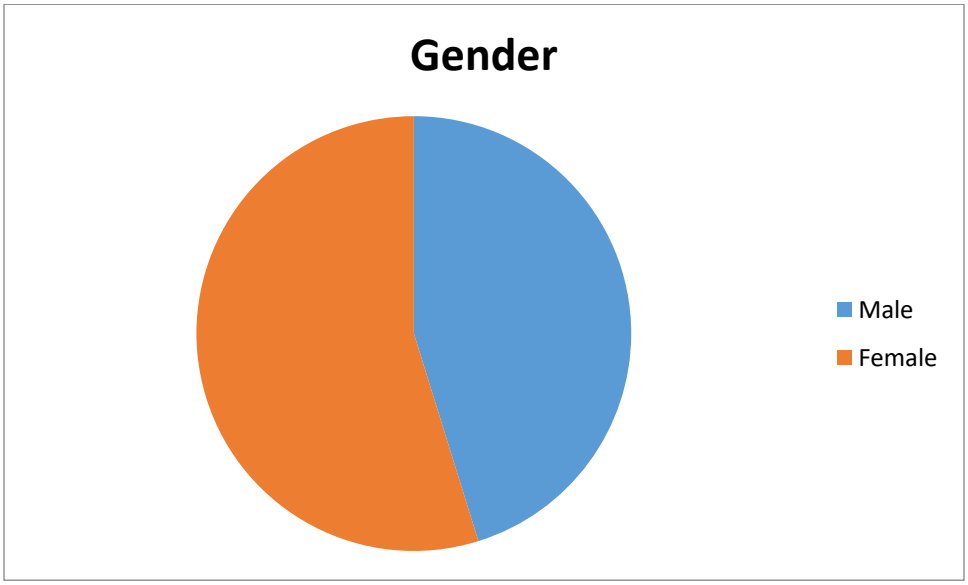


Table 2. Showing Age-wise Distribution of the Samples

Age Group	Frequency	Percent
18–30	24	32.9%
31–40	20	27.4%
41–50	15	20.5%
>50	14	19.2%
Total	**73**	**100.0%**

Figure 2. Showing Age-wise Distribution of the Samples

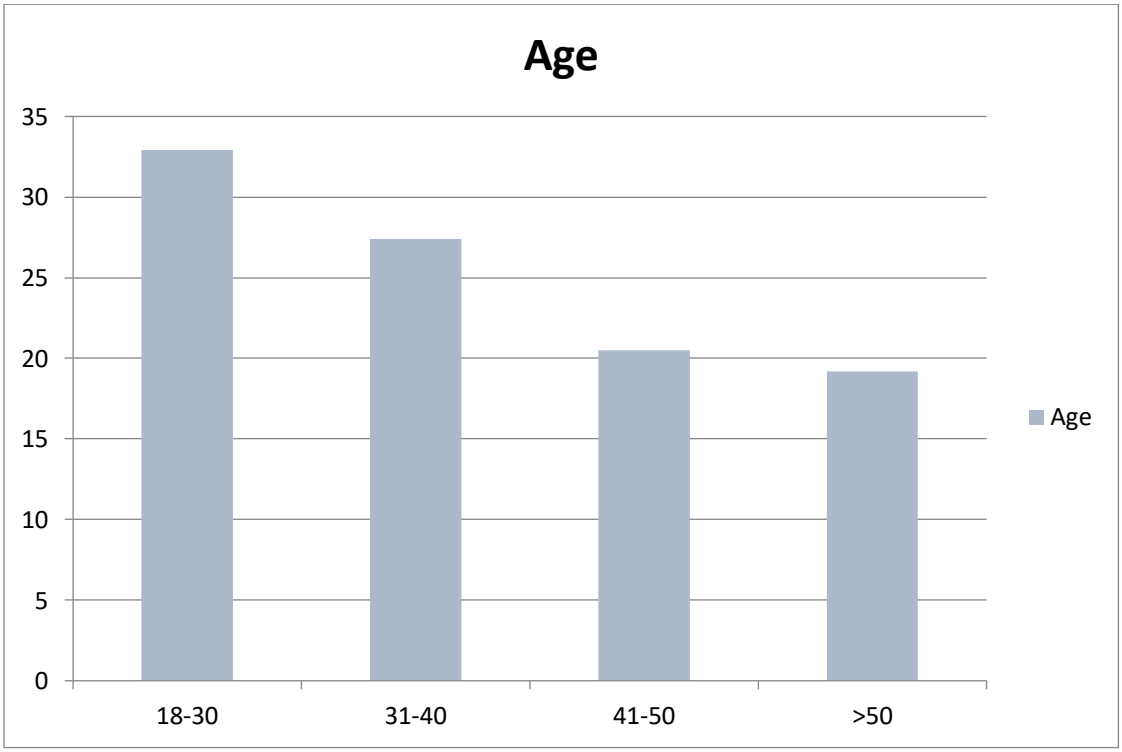


Table 3. Showing Qualification-wise of the Samples

Qualification	Frequency	Percent
Illiterate	26	35.6 %
Primary/Upper Primary	11	15.1 %
$10^{th}/12^{th}$	26	35.6 %
UG/PG	10	13.7 %
Total	**73**	**100.0%**

Figure 3. Showing Qualification of the Samples

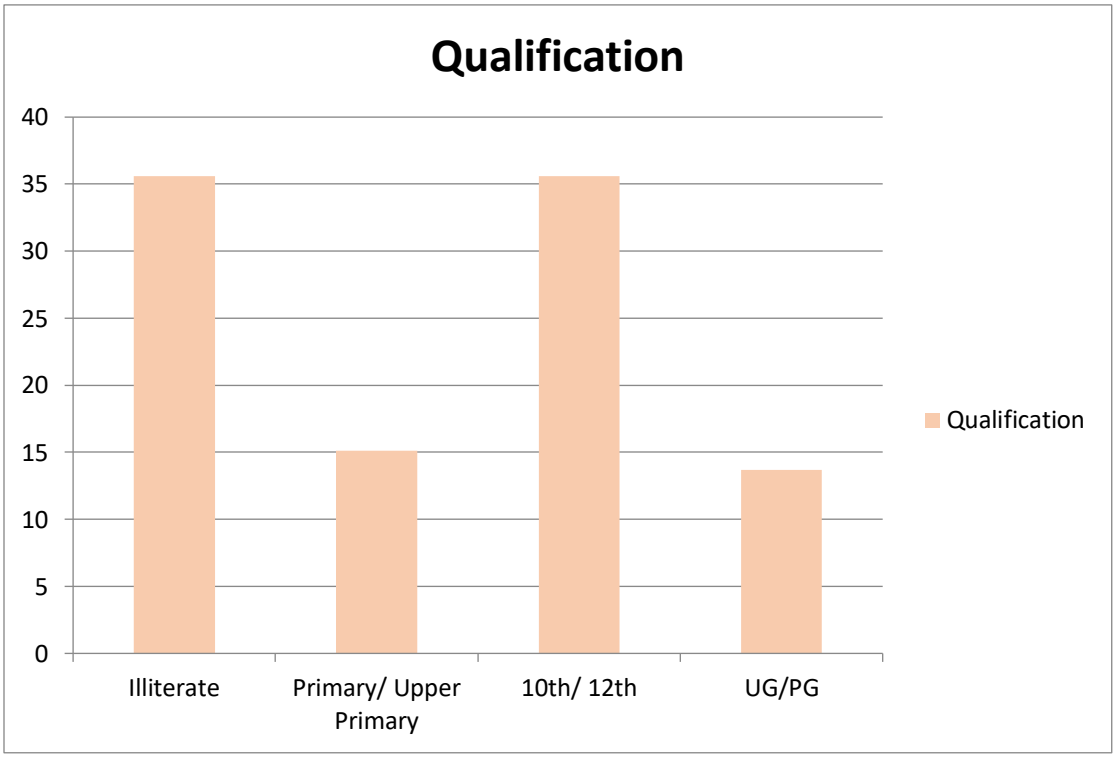


Table 4. Showing Occupation of the Samples

Occupation	Frequency	Percent
Unemployed	31	42.5 %
Gov/ Private	23	31.5 %
Business	14	19.2 %
students	5	6.8 %
Total	**73**	**100 %**

Figure 4. Showing Occupation of the Samples

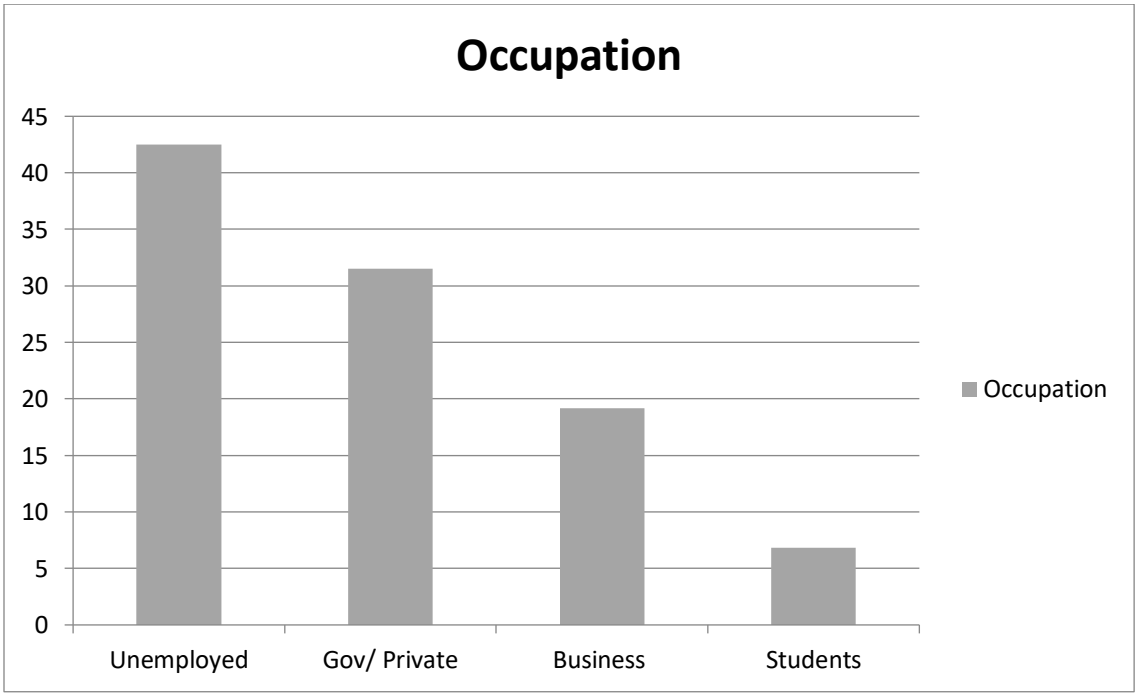


Table 5. Showing Duration of Illness of the Samples

Duration	Frequency	Percent
≤ 1 Year	66	90.4%
> 1 Year	7	9.6%
Total	**73**	**100.0%**

Figure 5. Showing Duration of Illness of the Samples

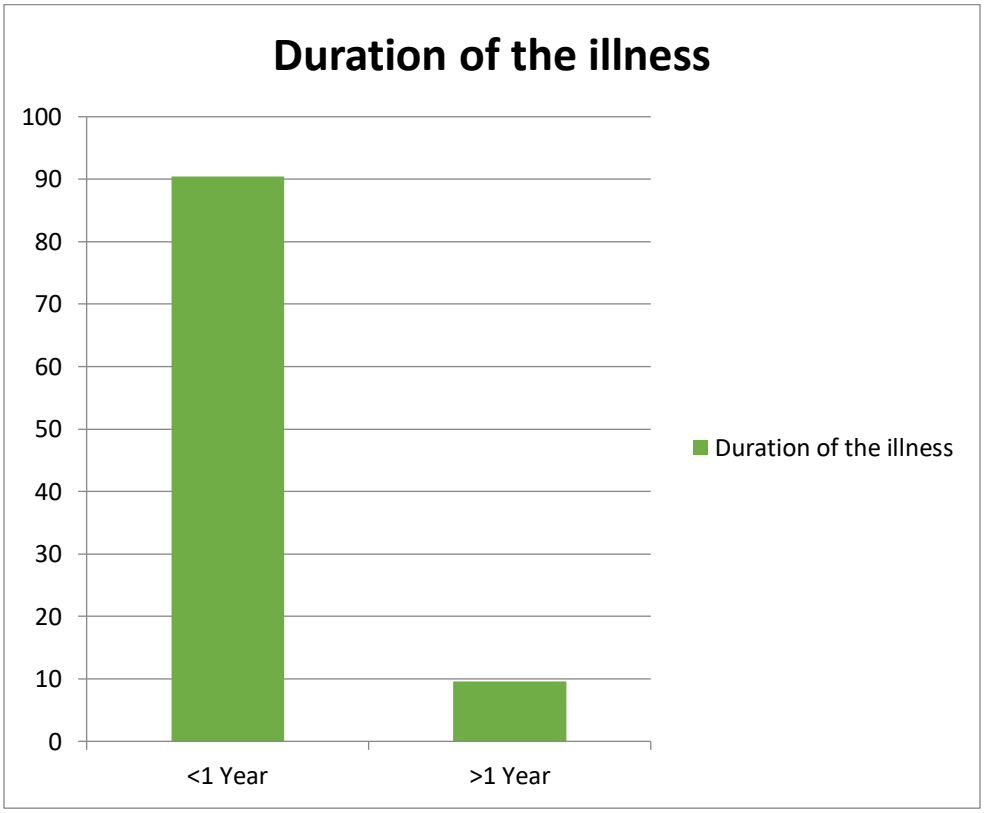


Table 6. Showing General Health Questionnaire (GHQ – 12)

Level	Frequency	Percent
Mild	15	20.5%
Moderate	58	79.5%
Total	**73**	**100.0%**

Figure 6. Showing General Health Questionnaire (GHQ-12)

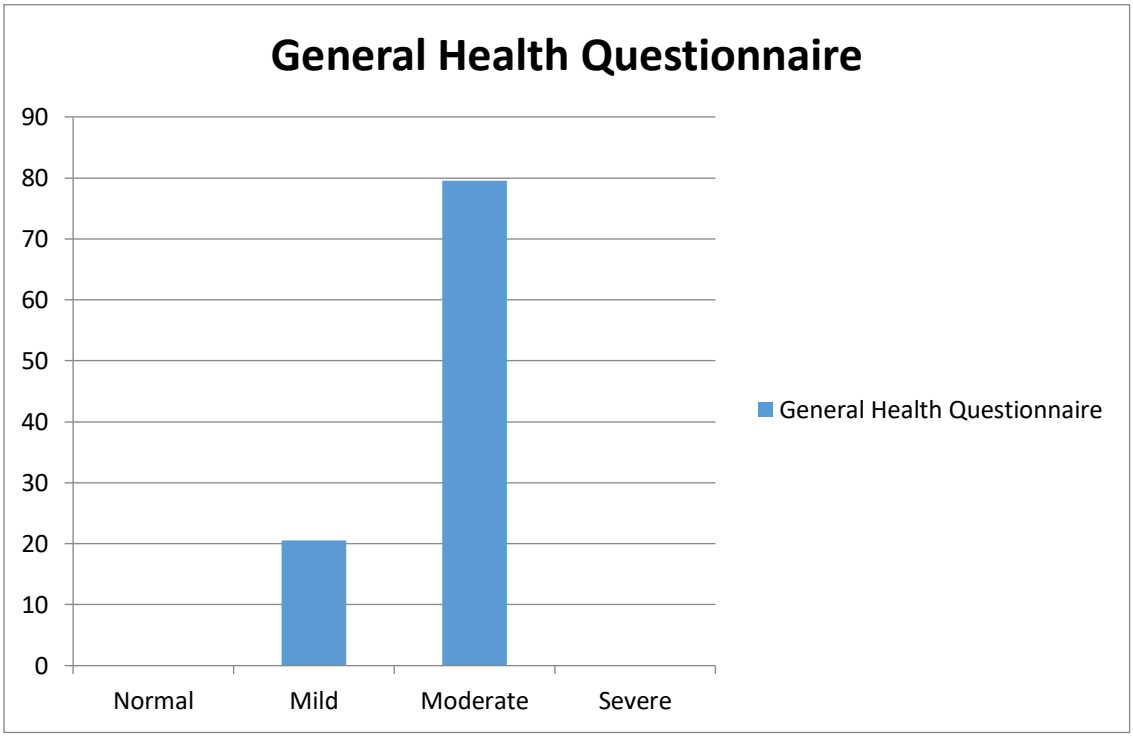
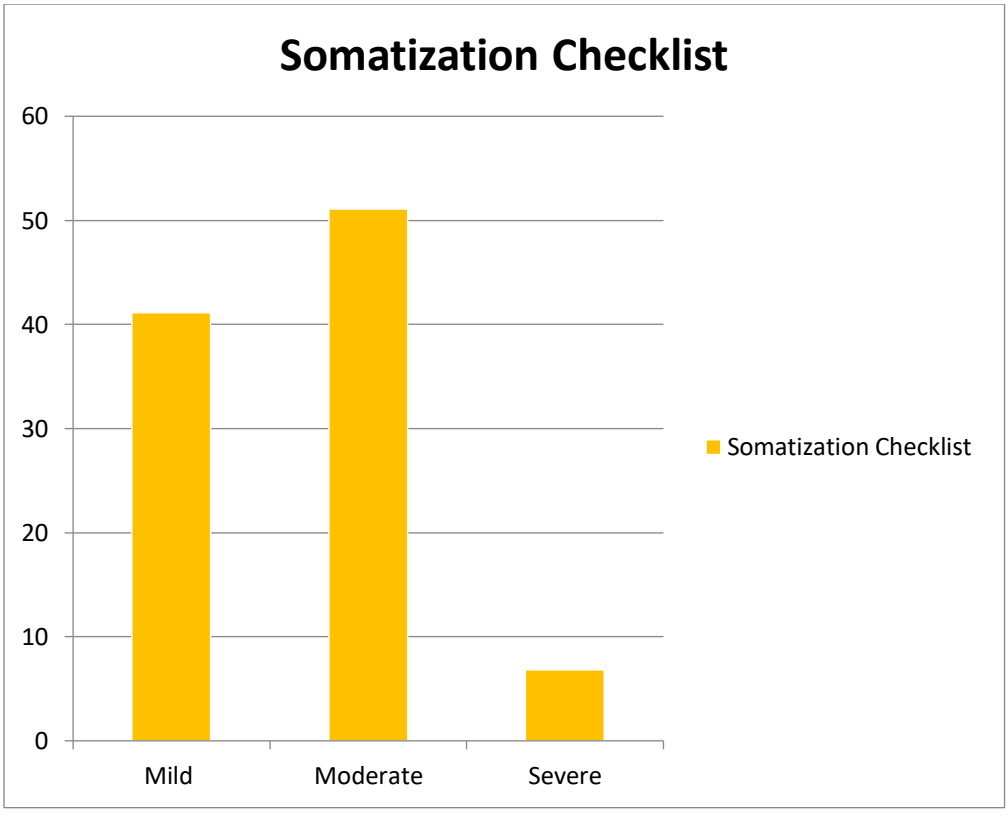


Table 7. Showing Somatization Disorder Checklist (SDC)

Level	Frequency	Percent
Mild	30	41.1%
Moderate	38	52.1%
Severe	5	6.8%
Total	**73**	**100.0%**

Figure 7. Showing Somatization disorder Checklist (SDC)



Depression, Anxiety and Stress

Table 8. DASS – 42 (Depression)

Level	Frequency	Percent
Normal	6	8.2%
Mild	16	21.9%
Moderate	43	58.9%
Severe	8	11.0%
Total	**73**	**100.0%**

Figure 8. DASS – 42 (Depression)

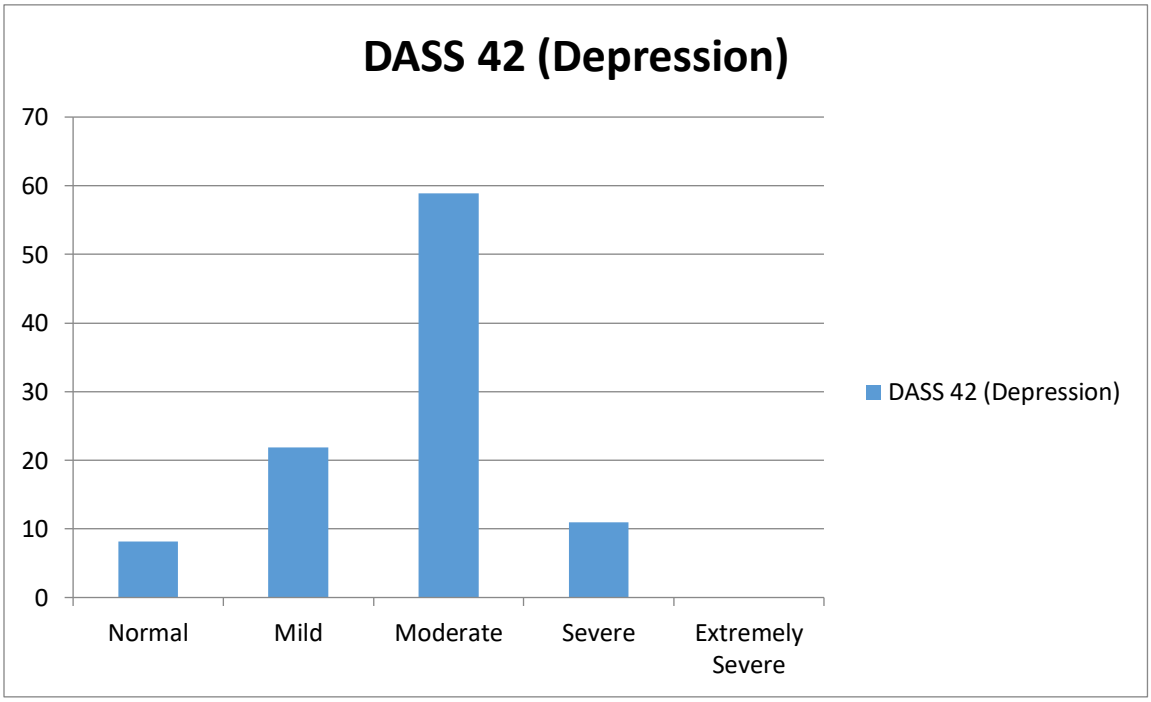


Table 9. DASS – 42 (Anxiety)

Level	Frequency	Percent
Normal	3	4.1%
Mild	2	2.7%
Moderate	23	31.5%
Severe	34	46.6%
Extremely Severe	11	15.1%
Total	**73**	**100.0%**

Figure 9. DASS – 42 (Anxiety)

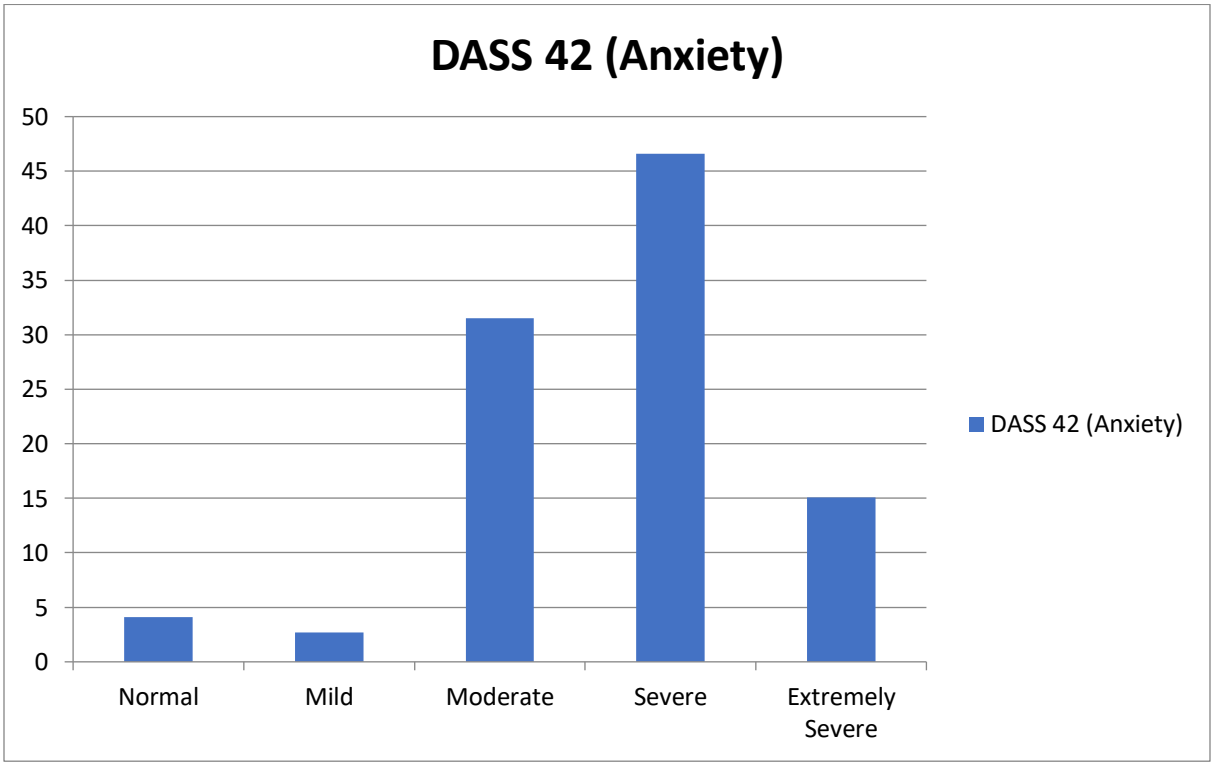


Table 10. DASS – 42 (Stress)

Stress Level	Frequency	Percent (%)
Normal	17	23.3
Mild	16	21.9
Moderate	22	30.1
Severe	18	24.7
Extremely Severe	0	0.0
Total	**73**	**100.0**

Figure 10. DASS – 42 (Stress)

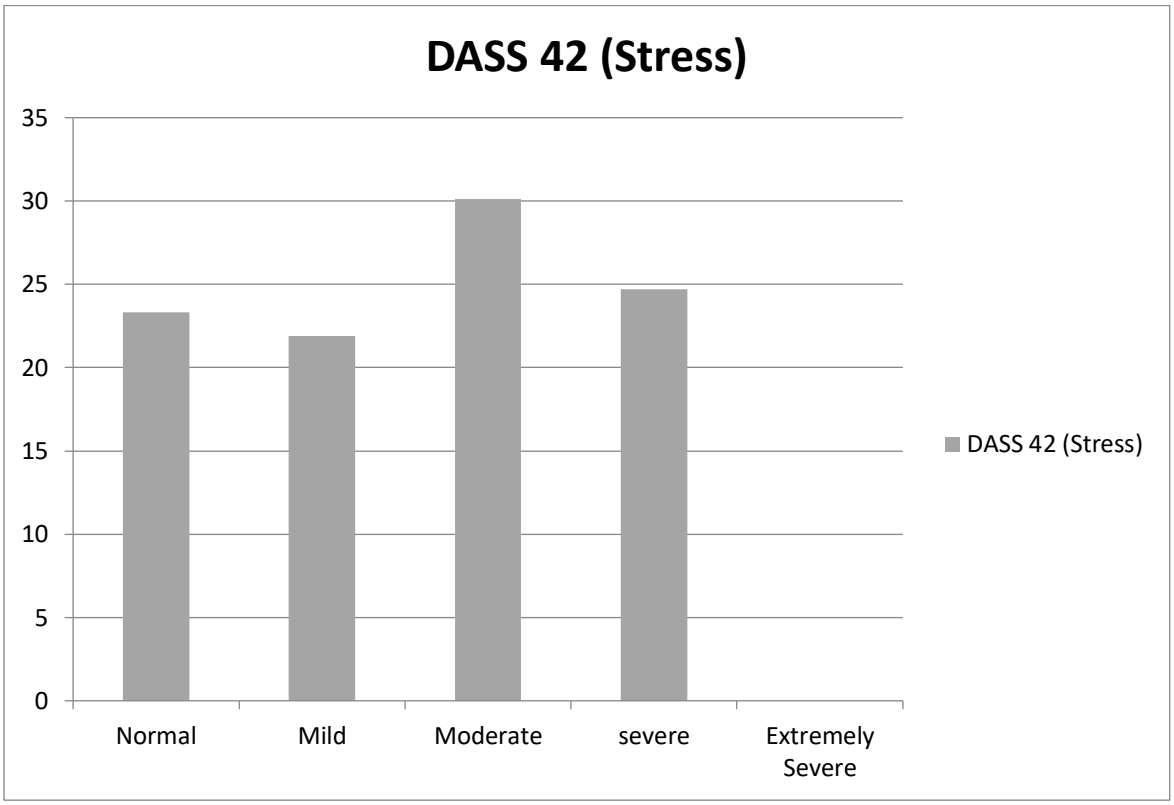
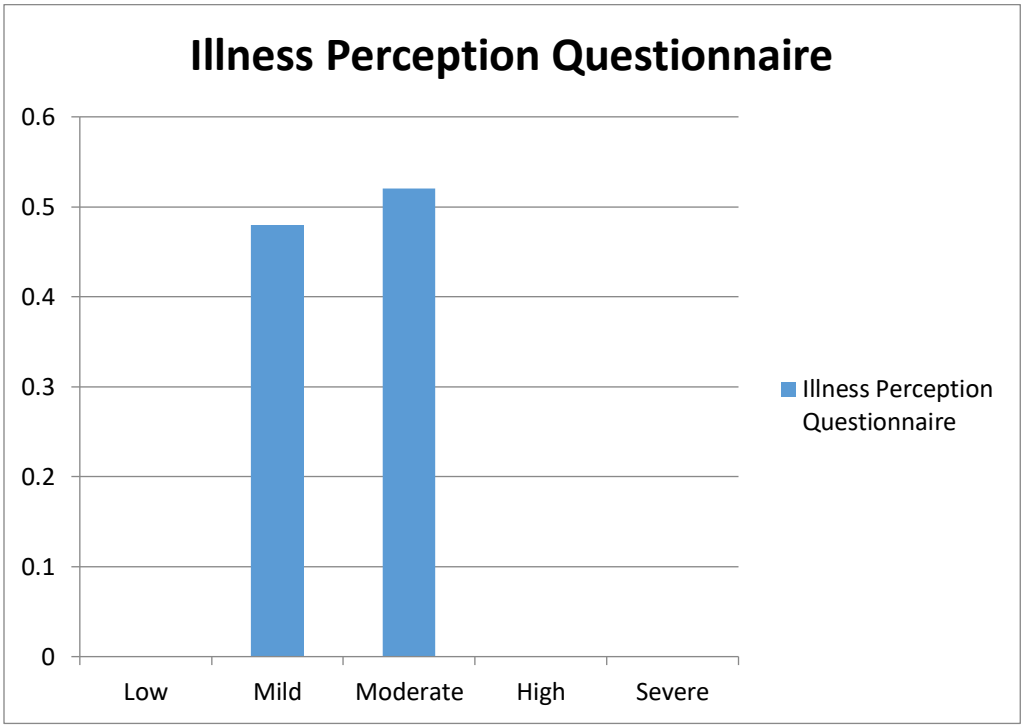


Table 11. Showing Illness Perception Questionnaire (IPQ – R)

Level	Frequency	Percent
Low	0	0
Mild	35	48%
Moderate	38	52%
High	0	0
Severe	0	0
Total	73	100%

Figure 11. Showing Illness Perception Questionnaire (IPQ – R)



MEAN AND STANDARD DEVIATION

Table 12. Mean and Standard Deviation of General Health questionnaire (GHQ)

TEST	Mean	SD
GHQ	15.7	±3.6

Figure 12. Showing Mean and Standard Deviation of General Health Questionnaire (GHQ)

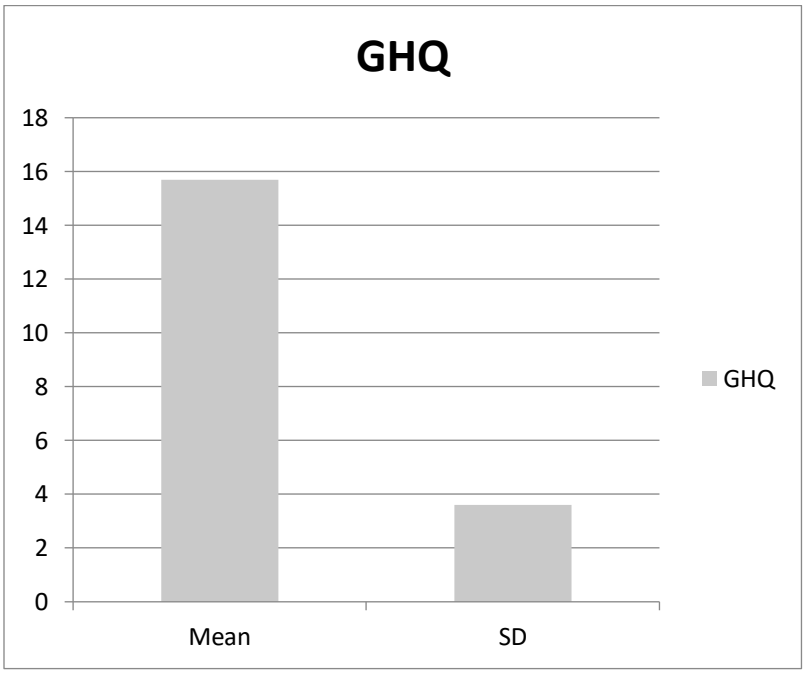


Table 13. Showing Mean and Standard Deviation of Somatization Checklist

Test	Mean	SD
Somatization Checklist	24.01	±8.3

Figure 13. Showing Mean and Standard Deviation of Somatization Checklist

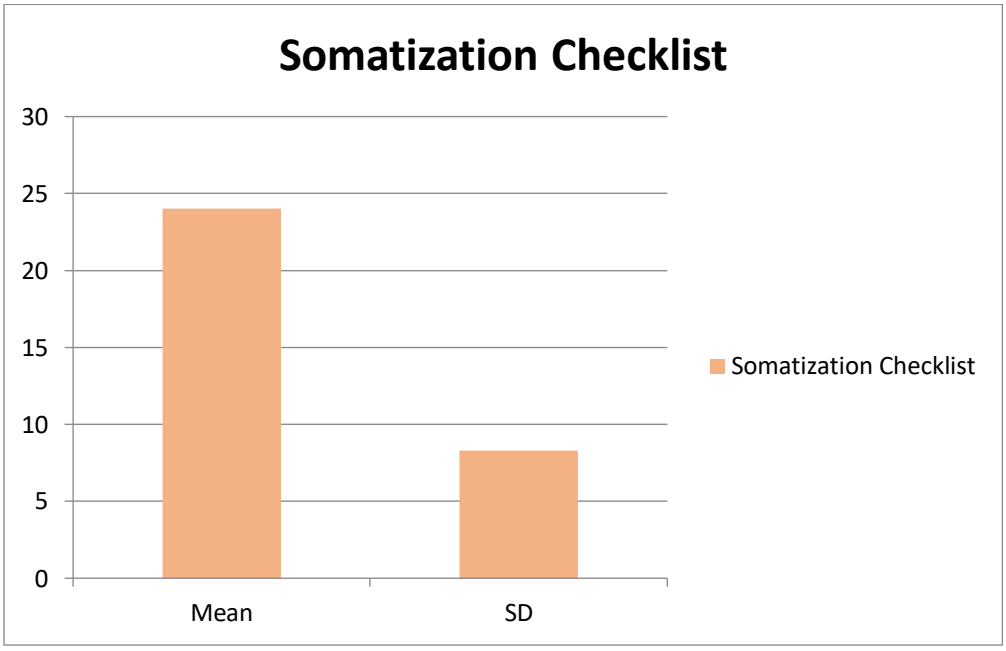


Table 14. Showing Mean and Standard Deviation of DASS 42 (Depression)

Test	Mean	SD
DASS 42 (Depression)	15.24	±4.46

Figure 14. Showing Mean and Standard Deviation of DASS 42 (Depression)

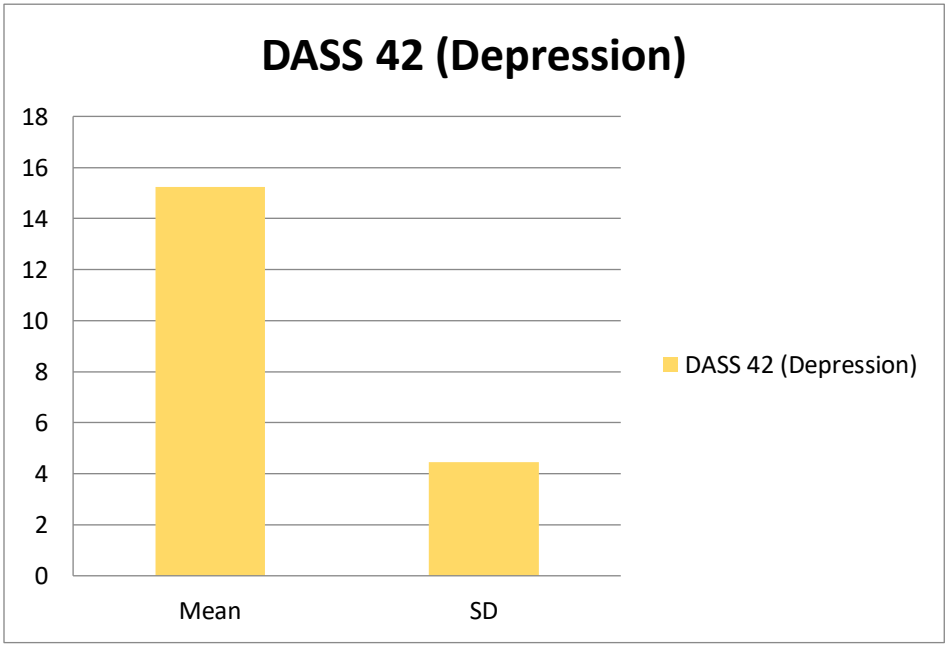


Table 15. Showing Mean and Standard Deviation of DASS 42 (Anxiety)

Test	Mean	SD
DASS 42 (Anxiety)	15.83	±4.40

Figure 15. Showing Mean and Standard Deviation of DASS 42 (Anxiety)

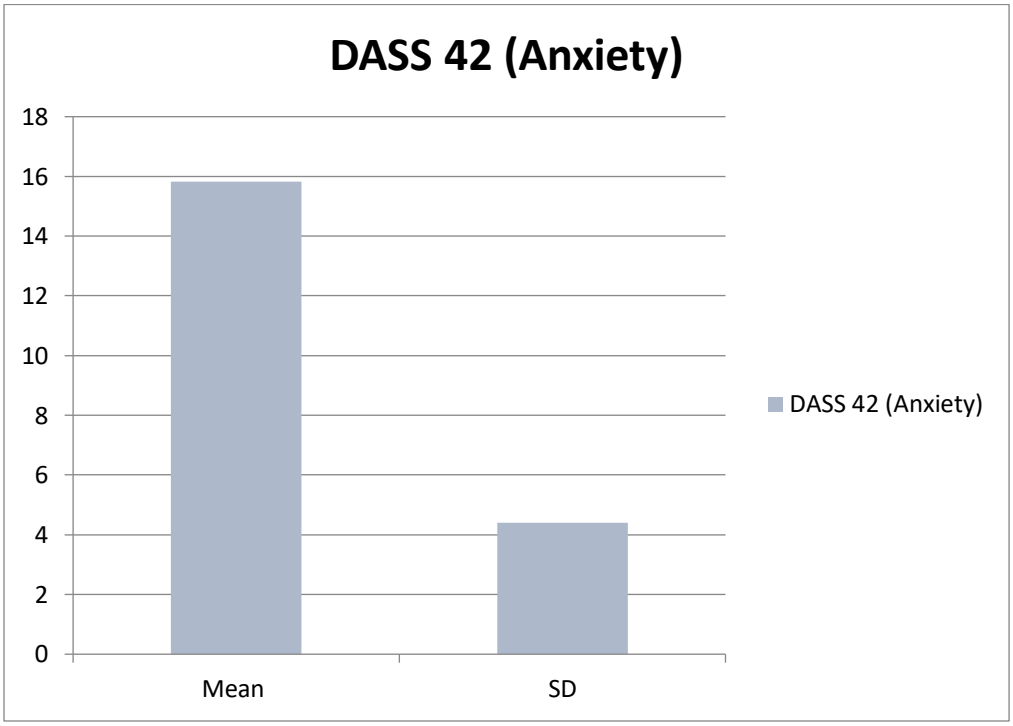


Table 16. Showing Mean and Standard Deviation of DASS 42 (Stress)

Test	Mean	SD
DASS 42 (Stress)	19.91	±5.68

Figure 16. Showing Mean and Standard Deviation of DASS 42 (Stress)

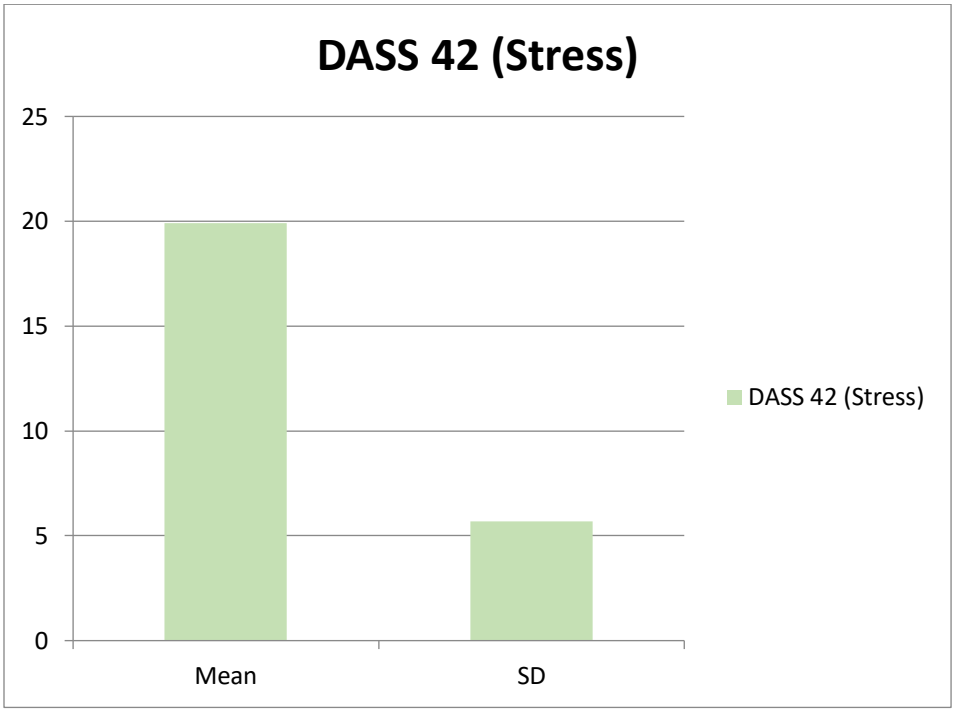
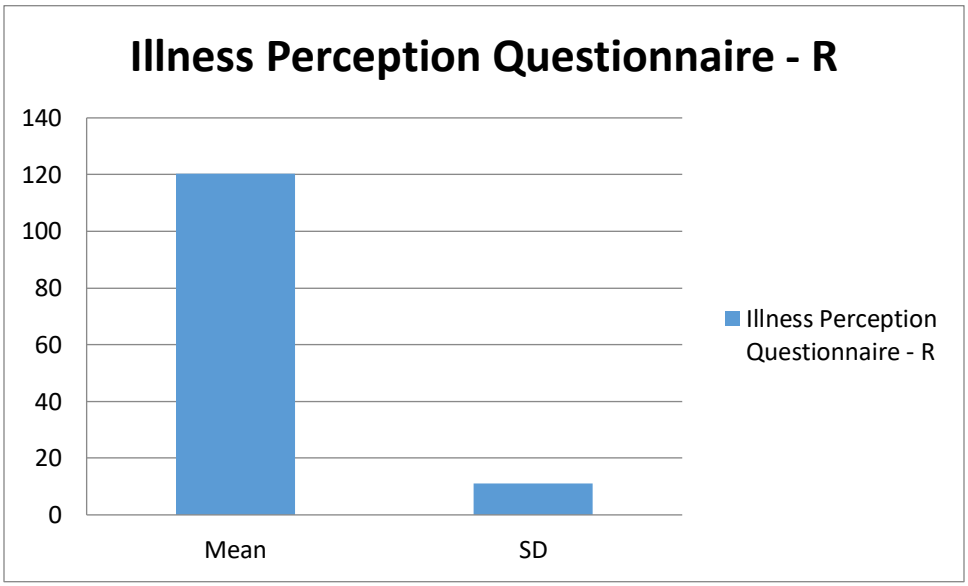


Table 17. Showing Mean and Standard Deviation of the Samples

Test	Mean	SD
Illness Perception Questionnaire – R	120.38	11.14

Figure 17. Showing Mean and Standard Deviation of the Samples



CORRELATION

Table 18 . Showing Correlation Matrix

Correlation	r- value	p-value	Interpretation
GHQ and Somatization	0.274	0.017	**Significant** ($p < 0.05$)
GHQ and Depression	0.203	0.081	Not Significant ($p > 0.05$)
GHQ and Anxiety	0.196	0.092	Not Significant ($p > 0.05$)
GHQ and Stress	0.135	0.248	Not Significant ($p > 0.05$)
GHQ and IPQ – R	0.114	0.336	Not Significant ($p > 0.05$)
Somatization and Depression	0.204	0.079	Not Significant ($p > 0.05$)
Somatization and Anxiety	0.200	0.085	Not Significant ($p > 0.05$)
Somatization and Stress	0.231	0.046	**Significant** ($p < 0.05$)
Somatization and IPQ – R	-0.017	0.887	Not Significant ($p > 0.05$)
Depression and Anxiety	0.559	0.000	**Significant** ($p < 0.01$)
Depression and Stress	0.389	0.001	**Significant** ($p < 0.01$)
Anxiety and Stress	0.470	0.000	**Significant** ($p < 0.01$)
IPQ – R and Depression	-0.091	0.446	Not Significant ($p > 0.05$)
IPQ – R and Anxiety	0.107	0.367	Not Significant ($p > 0.05$)
IPQ – R and Stress	0.045	0.705	Not Significant ($p > 0.05$)

***. Correlation is significant at the 0.05 level . **. Correlation is significant at the 0.01 level.**

DISCUSSION

CHAPTER 6

DISCUSSION

This chapter tries to explain the results obtained by applying statistical operations of the data collected for the study purpose. Here, the entire findings have been reported on the basis of statistical analysis in the following heads:

1) Interpretation on demographic details
2) Findings based on the Psychological test measures.

   a) i. General Health Questionnaire (GHQ – 12)

      ii. Somatization Disorder Checklist (SDC)

      iii. Depression, Anxiety and Stress Scale (DASS – 42)

      iv. Illness Perception Questionnaire (IPQ – R)

b) The Correlations between General Health Questionnaire (GHQ – 12) with Somatization Disorder Checklist (SDC), Depression, Anxiety and Stress Scale (DASS – 42) and Illness Perception Questionnaire (IPQ – R).

1. INTERPRETATION OF DEMOGRAPHIC DISTRIBUTION

INTERPRETATION OF GENDER-WISE DISTRIBUTION (Table 1 and Figure 1)

The interpretation of the scores are based on group as a whole. The entire sample consists of 73 samples with symptoms of stress with Gastrointestinal Disorders where 55% are females and 45% are males. Thus, this difference in the subjects have been taken care of during statistical operations and it is revealed that female population are more than the males and are more prone to having this difficulties affecting their daily life functioning.

INTERPRETATION OF AGE-WISE DISTRIBUTION (Table 2 and Figure 2)

The entire population of the groups are being classified in four groups based on afe-wise distribution. The distribution in this ages , 33% of the population belongs to the age range 18 – 30 years, 27% to the age range of 31-40 years, to the age range of 41 – 50 years and 19% belongs to the age range of >50 years. The entire group has age wise dominating population which is between 18 – 30 years.

INTERPRETATION OF SAMPLES BASED ON EDUCATIONAL QUALIFICATION (Table 3 and Figure 3)

Here, approximately 36% of the population were illiterate while 15% were literate with primary education. Approximately 36%of the population has been carrying secondary to higher secondary education background and 14% population were ranging between

This distribution is a a chance factor related to the availability of subjects chosen for data collection .

INTERPRETATION OF SAMPLES BASED ON OCCUPATION (Table 4 and Figure 4)

This has been classified as unemployed, pursuing government or private jobs, pursuing business or belonging to the students category. Unemployed population is 43%, working population is 32% while business population are 19% and 7% are students.

INTERPRETATION OF SAMPLES BASED ON DURATION OF THE ILLNESS (Table 5 and Figure 5)

The data indicates that the vast majority of cases (90.4%) had a duration of 1 year or less, while only a small proportion (9.6%) extended beyond 1 year. This suggests that the condition, event, or situation under study is generally short-term, resolving or concluding within a year in

most instances. The low percentage of cases lasting more than a year may imply either effective interventions, self-limiting nature of the condition, or other contextual factors that limit its duration.

2. FINDINGS BASED ON PSYCHOLOGICAL TEST MEASURES

a. i) INTERPRETATION OF GENERAL HEALTH QUESTIONNAIRE (GHQ – 12)

(Table 6 and figure 6)

The performance reveals out of 73 samples of Stress related GI Disorder, approximately 80% population is carrying moderate health issues and 20% have mild health issues which is a matter of concern.

ii) INTERPRETATION OF SOMATIZATION DISORDER CHECKLIST (SDC) (Table 7 and figure 7)

Since, this group is suffering from somatic disturbances because of the physical disturbances, therefore, this Somatization Checklist was administered on 73 samples.

It was found that approximately 7% of the population is facing severe somatic disturbances while 52% is facing moderate somatic disturbances. 41% is facing mild somatic complaints. It also shows approximately 58% is at risk and their grievances are needed to be addressed with immediate effect and even the mildly affected population is needed to be taken care if they do not come out from psychological stress.

Data from the Longitudinal Aging Study in India (2017–18) revealed a high prevalence of self-reported GI problems among older adults. The study identified associations between GI issues and non-communicable diseases like hypertension and diabetes, as well as mental health

conditions such as depression and anxiety. These findings underscore the need for integrated healthcare approaches addressing both physical and mental health [45].

Another study, A population-based case-control study assessed how functional GI disorders like irritable bowel syndrome (IBS) and dyspepsia affect health-related quality of life (HRQoL). The study found that individuals with these conditions reported significantly lower physical and mental HRQoL scores compared to healthy controls. Notably, psychological factors, such as somatization, played a substantial role in this impairment [46].

iii) a. INTERPRETATION OF DEPRESSION DASS – 42 (Table 8 and figure 8)

After applying the particular test, the findings have revealed the following psychological distress.

In Depression, 11% of the population is carrying severe depression, 59% of population is carrying moderate and 22% of the population is carrying severe depression. Here, the moderate depression among the patients along with severe patients have to be seriously taken care of otherwise they are at a risk of severe psychological distress.

b. INTERPRETATION OF ANXIETY DASS – 42 (Table 9 and figure 9)

If we check the scores of Anxiety scores, the highest percentage is 41% which falls under the category of severe anxiety level and 15% of the samples have extremely severe anxiety while 32% are having moderate anxiety. 30% of the population are under mild and 4% of the samples

are having normal level anxiety. Here, approximately 62% of population is at risk and if they continue the status eve for short period of time, then probably their symptoms will increase in future because the dynamics of this is psychologically oriented.

c. INTERPRETATION OF STRESS DASS – 42 (Table 10 and figure 10)

While assessing the stress level of the concerned subjects. Approximately, 25% of the total samples are burdened by severe stress and 30% by moderate stress.

To a certain extend, we cannot ignore the issues which approximately 22% of the samples are facing which also should not be left unattended because of all this there are at a vulnerable stage. This vulnerable stage is assumed to carry alarming state for some followed by stage of resistance and stage of exhaustion. Therefore, the entire population of the group that is 77% of the population is highly stressed and they need to be held in otherwise they need to face a very bad shape of life.

This is when the GAS model General Adaptation Syndrome takes place. It was proposed by Hans Selye in 1936 is a foundational framework in stress research. It describes how the body responds to stress in three stages: Alarm, Resistance, and Exhaustion. This model has been widely applied in medical, psychological, and physiological studies, including its relevance to gastrointestinal (GI) disorders [47].

GAS in Irritable Bowel Syndrome (IBS)

The resistance and exhaustion stages of the GAS model can explain the chronic nature of IBS, a condition often triggered or worsened by psychological stress. Chronic stress impacts gut motility, increases visceral sensitivity, and alters the microbiome—hallmarks of IBS.

Chronic Stress and Inflammatory Bowel Disease (IBD)

In patients with Crohn's disease or ulcerative colitis, stress (especially chronic stress) can worsen symptoms or trigger flare-ups. This aligns with the exhaustion phase of GAS, where immune regulation is compromised.

Stress and Peptic Ulcers

Research has confirmed that chronic stress, through the exhaustion stage of GAS, leads to increased gastric acid secretion and mucosal damage, contributing to peptic ulcers. Though Helicobacter pylori is the main cause, stress is a significant exacerbating factor [(47)].

The GAS model remains a powerful theoretical framework for understanding how chronic stress contributes to GI disorders, such as ulcers, IBS, and IBD. It provides a lens through which physiological and psychological stress responses can be linked to disease progression [(48)].

iv) INTERPRETATION OF ILLNESS PERCEPTION QUESTIONNAIRE IPQ – R

(Table 11 and Figure 11)

The data shows that **all cases fall within the Mild to Moderate range**, with **no instances** recorded in the Low, High, or Severe categories. Specifically, **48%** of the cases were classified as **Mild**, while **52%** were **Moderate.** This distribution indicates that the majority of subjects experienced **a moderate level of the condition**, with nearly equal distribution between Mild and Moderate levels. This indicates that the samples falling under the level of moderate are more likely to be aware about their illness, perceiving their illness will be cured and managed and are willing to have control on it for a better lifestyle.

Finally, they are being taken for 58ounseling at any level which will help them to come out of

their problems because this is the demarcating point where they are suffering but if they remain unattended so as they are already living with stress probably in future they may meet with uncertainity.

3. CORRELATION ANALYSIS:

CORRELATION OF GHQ -12 WITH SDC, DASS – 42 AND IPQ – R

General Health Questionnaire (GHQ -12) and Somatization Disorder Checklist : When somatization complaints were correlated with GHQ, it is a positive correlation which is significant at 0.05 level which means the more the symptoms which shows bodily predispositions the health complications will be increased.

General Health Questionnaire (GHQ -12) with DASS 42: Here, there is no correlation between GHQ and Depression, Anxiety and Stress as it is not significant at 0.05 level.

General Health Questionnaire (GHQ -12) with Illness Perception Questionnaire (IPQ – R) was seen to be not significant at 0.05 level.

CORRELATION OF SDC WITH DASS – 42 AND IPQ – R

While weakly positive, these associations are not statistically significant. This suggests somatic symptoms are more strongly linked to stress than to depression, anxiety, or illness perception in this sample.

CORRELATION OF DASS – 42 WITH IPQ – R

Illness perceptions (IPQ–R) do not significantly correlate with depression, anxiety, or stress. How individuals view their illness (in terms of control, consequences, timeline, etc.) may not be closely tied to their current emotional symptoms in this dataset — or may require a different measurement approach or a larger sample to detect effects.

Patients with GI disorders are susceptible to psychiatric co-morbidities. It aimed to ascertain the burden of anxiety, depression, and stress in patients with GI disorders . The prevalence of anxiety, depression and stress was 14%, 12%, and 41%, respectively. Females had higher mean

of stress, anxiety and depression scores compared to males. Where, patients experienced low stress (58.5%), 36.5 % experienced moderate level of stress and 5% experienced high level of stress [39]. Thus, we reject the null hypothesis.

Thus, as a whole the patients were carrying GI discomfort at a moderate level of psychopathology and if they are being taken care of with immediate affect then they are capable of coming out of their daily functioning issues.

CONCLUSION

CHAPTER 7

CONCLUSION

The study examined the psychological profile of 73 individuals suffering from gastrointestinal (GI) disorders using standardized psychological tools such as the General Health Questionnaire-12 (GHQ-12), the Depression Anxiety Stress Scales (DASS-42), and the Illness Perception Questionnaire-Revised (IPQ-R). The sample consisted of slightly more females (55%) than males (45%), with the majority falling within the 18–30 age group. Most participants had experienced their illness for less than a year, and a significant portion were unemployed or had only basic education.

Psychological assessments revealed a high prevalence of emotional distress. The GHQ-12 showed that nearly 80% of the participants were experiencing moderate psychological health issues, indicating substantial mental strain. The Somatization Checklist reflected that over half (52%) had moderate somatic symptoms, with 7% showing severe levels, pointing to significant physical complaints likely influenced by psychological factors. DASS-42 results showed that 59% of the sample had moderate depression and 11% had severe depression. In terms of anxiety, 47% experienced severe levels, and 15% fell into the extremely severe category. Stress levels were also elevated, with 30% experiencing moderate and 25% severe stress. This finding is particularly important in the context of the General Adaptation Syndrome (GAS) model, which suggests that prolonged stress can lead to physiological and psychological breakdown, often seen in chronic GI conditions like IBS and IBD.

The IPQ-R revealed that 48% of participants had mild and 52% moderate perceptions of their illness, indicating a general awareness of their health status and a belief that their condition was manageable. However, correlations between illness perception and emotional distress

(depression, anxiety, stress) were not statistically significant. In contrast, significant correlations were found between somatization and both stress ($r = 0.231$, $p = 0.046$) and GHQ scores ($r = 0.274$, $p = 0.017$), suggesting that as GI complaints increased, so did psychological distress. Additionally, strong positive correlations existed between depression, anxiety, and stress, reinforcing the interlinked nature of these emotional states in GI disorder patients.

Overall, the findings highlight the complex interaction between stress, emotional well-being, and GI health. While many patients had a moderate understanding and perception of their illness, the high levels of stress, anxiety, and depression signal an urgent need for psychological intervention. Timely mental health support could mitigate the progression of symptoms and improve the quality of life for individuals suffering from GI disorders.

Limitations:

- The sample size is relatively small, which limits generalizability to the broader population.
- A high proportion of participants were illiterate or minimally educated (about 71%), which may limit the accuracy or consistency of questionnaire responses.
- The cross-sectional nature of the study captures only a snapshot in time, preventing any determination of causal relationships between psychological factors (e.g., stress, anxiety, depression) and gastrointestinal (GI) symptoms. Longitudinal or prospective designs are needed to establish temporal dynamics.

Delimitations:

- Only functional GI disorders like IBS, IBD were considered.

- Standardized tools were used to measure stress and GI symptoms.
- Data collection was restricted to a specific geographic area.

Future Recommendations:

- Conduct studies with larger, more representative samples to improve statistical power and generalizability.
- Include participants from diverse socioeconomic, educational, and cultural backgrounds to examine variability in stress-GI relationships across populations.
- Implement longitudinal studies to assess how stress, general health, and illness perception change over time and influence the onset, course, and remission of GI symptoms.

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BIBLIOGRAPHY

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ANNEXURES

ANNEXURE I

SANTOSH MEDICAL COLLEGE AND HOSPITALS

DEPARTMENT OF CLINICAL PSYCHOLOGY

CONSENT FORM

Name of Participant: **Date:**

You are requested to be a part of the study titled "EFFECTS OF STRESS ON GASTROINTESTINAL DISORDERS" that is to be conducted in the Department of Clinical Psychology at Santosh deemed to be University, Ghaziabad, Uttar Pradesh.

Your voluntary participation in this study is important. If anytime you are not willing to continue, you can withdraw. The information obtained from you will be kept confidential and will only be used to fulfill the objective of this study. This study is free of cost. If you have any queries feel free to ask - ankitagrg104@gmail.com .

I _____ give my consent voluntarily to participate in this research.

Investigators: Ankita Gurung (M.Sc Clinical Psychology, PG student, Dept. of Clinical Psychology, Santosh Deemed to be University)

Dr. Rani Srivastava (Prof. and Head, Dept. of Clinical Psychology, Santosh Deemed to be University)

Dr. Ashok Kumar (Prof. and Head, Dept. of General Medicine , Santosh Deemed to be University)

ANNEXURE II

संतोष मेडिकल कॉलेज, अस्पताल
नैदानिक मनोविज्ञान विभाग

सहमति पत्र

प्रतिभागी का नाम **तारीख:**

आपसे अनुरोध है कि आप **"गैस्ट्रोइंटेस्टाइनल डिसऑर्डर पर तनाव के प्रभाव"** शीर्षक वाले अध्ययन का हिस्सा बनें, जो संतोष डीम्ड विश्वविद्यालय, गाजियाबाद, उत्तर प्रदेश, भारत में अस्पताल प्रबंधन के सहयोग से नैदानिक मनोविज्ञान विभाग में आयोजित किया जाना है।

इस अध्ययन में आपकी स्वैच्छिक भागीदारी महत्वपूर्ण है। यदि आप भागीदारी के इच्छुक नहीं हैं या बीच में इस अध्ययन को छोड़ना चाहें तो आप अपनी भागीदारी वापस ले सकते हैं। यह सुनिश्चित किया जाता है कि आपसे प्राप्त जानकारी गोपनीय रखी जाएगी और इसका उपयोग केवल इस अध्ययन के उद्देश्यों को पूरा करने के लिए किया जाएगा। आपकी जानकारी के लिए, यह अध्ययन निःशुल्क है। यदि आपको मन मे इस अध्ययन से संबंधित कोई प्रश्न हैं तो आप वे पूछ सकते हैं। जांचकर्ता से इस पते पर पूछ सकते हैं: ankitagrg104@gmail.com .

मैं _____ इस शोध में भाग लेने के लिए स्वेच्छा से अपनी सहमति देता / देती हूं।

जांचकर्ता:
अंकिता गुरुंग (स्नातकोत्तर नैदानिक मनोविज्ञान छात्र, संतोष डीम्ड यूनिवर्सिटी)
डॉ. रानी श्रीवास्तव (मार्गदर्शक, प्रोफेसर और प्रमुख, नैदानिक मनोविज्ञान विभाग, संतोष डीम्ड टू बी यूनिवर्सिटी)
डॉ. अशोक कुमार (प्रोफेसर और प्रमुख, जनरल मेडिसिन विभाग, संतोष डीम्ड टू बी यूनिवर्सिटी)

ANNEXURE III

SANTOSH MEDICAL COLLEGE

DEPARTMENT OF CLINICAL PSYCHOLOGY

Preliminary Form

Name:_____

Age:_____

Gender:_____

Educational Qualification:_____

Occupation_____

Religion _____

Duration of the illness_____

ANNEXURE IV

General Health Questionnaire (GHQ) - 12

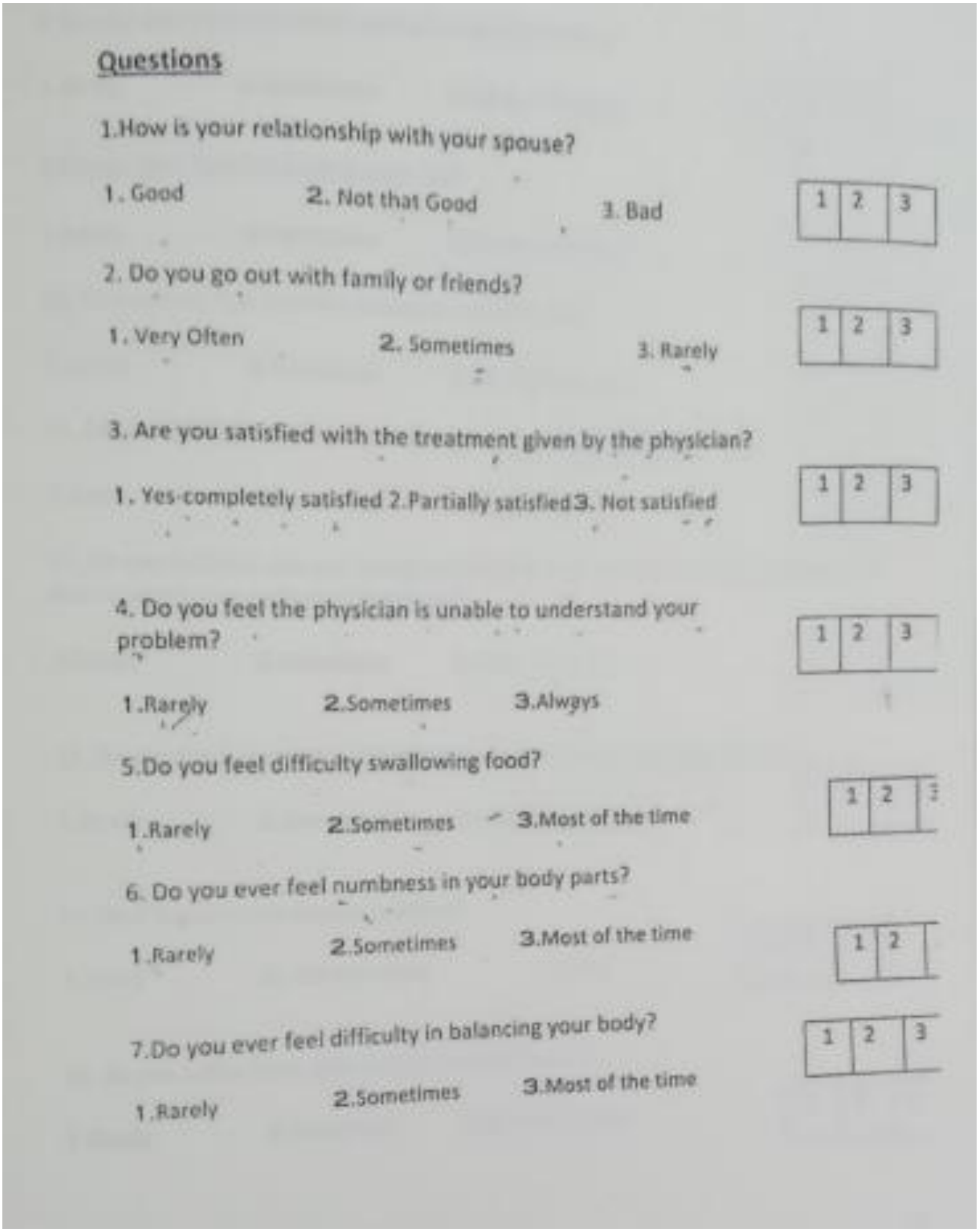
INSTRUCTIONS: We would like to know if you have any medical complaints and how your health has been in general, over the past few weeks. We want to know about present and recent complaints, not those you had in the past.

S.NO.	PARTICULARS	ALWAYS	OFTEN	SOMETIMES	NEVER
1.	Able to concentrate				
2.*	Lost much sleep over worry				
3.	Playing a useful part				
4.	Felt capable of making decisions				
5.*	Felt constantly under strain				
6.*	Could not overcome difficulties				
7.	Able to enjoy day-to-day activities				
8.	Able to face up to your problems				
9.*	Feeling unhappy and depressed				
10.*	Been losing confidence in yourself				
11.*	Thinking of self as worthless person				
12.	Feeling reasonably happy all things considered				

*** Negatively scored items.**

ANNEXURE V

SOMATIZATION DISORDER CHECKLIST (SDC)



Questions

1.How is your relationship with your spouse?

1. Good 2. Not that Good 3. Bad

1	2	3

2. Do you go out with family or friends?

1. Very Often 2. Sometimes 3. Rarely

1	2	3

3. Are you satisfied with the treatment given by the physician?

1. Yes completely satisfied 2.Partially satisfied 3. Not satisfied

1	2	3

4. Do you feel the physician is unable to understand your problem?

1.Rarely 2.Sometimes 3.Alwgys

1	2	3

5.Do you feel difficulty swallowing food?

1.Rarely 2.Sometimes 3.Most of the time

1	2	

6. Do you ever feel numbness in your body parts?

1.Rarely 2.Sometimes 3.Most of the time

1	2

7.Do you ever feel difficulty in balancing your body?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

8. Do you ever feel sad about your physical problems?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

9.Do you ever feel like ending your life?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

10. Do you ever feel burning sensation on your skin?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

11. Do you think that you suffer from serious physical disease or not?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

12. Do you feel that you are facing problems in your professional/ educational life due to your current physical problems?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

13. Do you think your physical problems are hindering your married life?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

14. How is your environment at home?

1. Good 2. Not that Good 3. Bad

1	2	3

15. Do you suffer from pain in chest and back area?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

16. Do you often suffer from stomach ache?

1.Rarely 2.Sometimes 3.Most of the time

1	2	

17. Do you feel you have problem digesting food?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

18. Do you ever have difficulty viewing far of objects?

1.Rarely 2.Sometimes 3.Most of the time

1	2	3

ANNEXURE VI

DEPRESSION, ANXIETY AND STRESS SCALE (DASS – 42)

DASS

Name: *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in any way (eg, elevators, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3

Please turn the page ☞

Reminder of rating scale:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

22	I found it hard to wind down	0	1	2	3
23	I had difficulty in swallowing	0	1	2	3
24	I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
26	I felt down-hearted and blue	0	1	2	3
27	I found that I was very irritable	0	1	2	3
28	I felt I was close to panic	0	1	2	3
29	I found it hard to calm down after something upset me	0	1	2	3
30	I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31	I was unable to become enthusiastic about anything	0	1	2	3
32	I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33	I was in a state of nervous tension	0	1	2	3
34	I felt I was pretty worthless	0	1	2	3
35	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36	I felt terrified	0	1	2	3
37	I could see nothing in the future to be hopeful about	0	1	2	3
38	I felt that life was meaningless	0	1	2	3
39	I found myself getting agitated	0	1	2	3
40	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41	I experienced trembling (eg, in the hands)	0	1	2	3
42	I found it difficult to work up the initiative to do things	0	1	2	3

ANNEXURE VII

ILLNESS PERCEPTION QUESTIONNAIRE (IPQ - R)

ILLNESS PERCEPTION QUESTIONNAIRE (IPQ-R)

Name…… Date……

YOUR VIEWS ABOUT YOUR ILLNESS Listed below are a number of symptoms that you may or may not have experienced since your illness. Please indicate by circling Yes or No, whether you have experienced any of these symptoms since your illness, and whether you believe that these symptoms are related to your illness. I have experienced this symptom since my illness

This symptom is related to my illness

Pain	Yes No _____	Yes No
Sore Throat	Yes No _____	Yes No
Nausea	Yes No _____	Yes No
Breathlessness	Yes No _____	Yes No
Weight Loss	Yes No _____	Yes No
Fatigue	Yes No _____	Yes No
Stiff Joints	Yes No _____	Yes No
Sore Eyes	Yes No _____	Yes No
Wheeziness	Yes No _____	Yes No
Wheeziness	Yes No _____	Yes No
Headaches	Yes No _____	Yes No
Upset Stomach	Yes No _____	Yes No
Sleep Difficulties	Yes No _____	Yes No
Dizziness	Yes No _____	Yes No
Loss of Strength	Yes No _____	Yes No

We are interested in your own personal views of how you now see your current illness. Please indicate how much you agree or disagree with the following statements about your illness by ticking the appropriate box.

	VIEWS ABOUT YOUR ILLNESS	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE
IP1	My illness will last a short time					
IP2	My illness is likely to be permanent rather than temporary					
IP3	My illness will last for a long time					
IP4	This illness will pass quickly					
IP5	I expect to have this illness for the rest of my life					
IP6	My illness is a serious condition					

	VIEWS ABOUT YOUR ILLNESS	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE
IP7	My illness has major consequences on my life					
IP8	My illness does not have much effect on my life					
IP9	My illness strongly affects the way others see me					
IP10	My illness has serious financial consequences					
IP11	My illness causes difficulties for those who are close to me					
IP12	There is a lot which I can do to control my symptoms					
IP13	What I do can determine whether my illness gets better or worse					
IP14	The course of my illness depends on me					
IP15	Nothing I do will affect my illness					
IP16	I have the power to influence my illness					
IP17	My actions will have no affect on the outcome of my illness					
IP18	My illness will improve in time					
IP19	There is very little that can be done to improve my illness					
IP20	My treatment will be effective in curing my illness					
IP21	The negative effects of my illness can be					

IP21	**The negative effects of my illness can be prevented (avoided) by my treatment**					
IP22	**My treatment can control my illness**					
IP23	**There is nothing which can help my condition**					
IP24	**The symptoms of my condition are puzzling to me**					
IP25	**My illness is a mystery to me**					
IP26	**I don't understand my illness**					
IP27	**My illness doesn't make any sense to me**					
IP28	**I have a clear picture or understanding of my condition**					
IP29	**The symptoms of my illness change a great deal from day to day**					
IP30	**My symptoms come and go in cycles**					
IP31	**My illness is very unpredictable**					
IP32	**I go through cycles in which my illness gets better and worse.**					
IP33	**I get depressed when I think about my illness**					
IP34	**When I think about my illness I get upset**					
IP35	**My illness makes me feel angry**					
IP36	**My illness does not worry me**					
IP37	**Having this illness makes me feel anxious**					
IP38	**My illness makes me feel afraid**					

LETTER OF ETHICAL CLEARANCE FOR DISSERTATION

SANTOSH
Deemed to be University

F. No. SU/2025/CRF/288 Dated: 25.05.2025

Subject: Approval of Research Project by the Institutional Human Ethics Committee.

Particular	Description
Project No.	EC/ M.Sc. Clinical Psychology./288
Project Title	Relation between stress and gastrointestinal disorders
Student Name	Ankita Gurung
Guide	Dr Rani Srivastava
Department	M.Sc. Clinical Psychology
Institution Name	Santosh Medical College & Hospital, Ghaziabad
Type of Study	Quantitative, Cross-sectional study
Ethics committee decision	Approved

This Ethical clearance letter valid for 2 years from the date of issue.

Jyoti Batra

Dr. Jyoti Batra
Member Secretary

Santosh Deemed to be University
Dean Research

To,
Ankita Gurung
M.Sc. Clinical Psychology

STATISTICIAN CERTIFICATE

STATISTICIAN CERTIFICATE

This is to certify that the statistical analysis component of the thesis titled **"Relation Between Stress and Gastrointestinal Disorders"** done by **Ankita Gurung** in the **Department of Clinical Psychology,** Santosh Medical College and Hospital, Ghaziabad, has been conducted under my direct guidance and supervision.

All the statistical calculations of this study are authentic and correct to the best of my knowledge.

Wishing her all the success in his life.

Dr Vikash Singh Patel

Assistant Professor cum Statistician

Department Of Community Medicine

Santosh Deemed To be University, Ghaziabad

Email: pvikash885@gmail.com

PLAGIARISM CERTIFICATE

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MASTER CHART

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	Name	Age	Gender	OPD .No	Qualification	Occupation	Religion	Duration of t	(GHQ)	SDC	Depression	Anxiety	Stress	IPQ-R
3														
4	P.N	28	Male	17452785	8th pass	shop owner	Hindu	2 years	6	30	3	4	26	108
5	H	27	Male	17534614	10th pass	NA	Hindu	6 months	18	43	14	19	28	117
6	R	52	Male	17363850	5th pass	NA	Hindu	7 months	17	28	16	15	9	119
7	S	35	Male	17456678	12th pass	shop owner	Hindu	1 year	14	21	14	17	21	119
8	V.S	24	Male	17530516	NA	4th grade	Hindu	6 months	18	19	16	19	16	120
9	P.S	42	Male	17538894	12th pass	shop owner	Hindu	1 month	13	23	13	14	13	115
10	H.A	39	Male	17453667	NA	Business	Muslim	7 months	11	21	18	17	18	121
11	R	37	Male	17467895	10th pass	shop owner	Hindu	5months	16	19	16	21	27	116
12	S	25	Male	17468079	12th pass	shop owner	Hindu	1 year	19	17	17	18	24	130
13	G	19	Male	17345234	12th pass	Student	Hindu	8 months	13	15	13	16	13	122
14	S	34	Male	17453452	10th pass	Business	Hindu	5 months	16	28	18	13	16	126
15	F	27	Male	17685043	12th pass	Salesperson	Muslim	1 month	13	16	15	19	29	115
16	MP	34	Male	17554632	BBA	Business	Muslim	4 months	19	21	17	21	30	113
17	J.Y	43	Male	17356789	NA	NA	Hindu	7 months	14	19	13	15	14	117
18	H.S	31	Male	17456745	10th pass	Salesperson	Hindu	4 months	18	25	12	15	12	122
19	R.S	33	Male	17389560	6th grade	NA	Muslim	2 years	15	14	15	13	17	110
20	H	47	Male	17548308	12th pass	4th grade	Muslim	4 months	14	17	18	14	26	138
21	K	65	Male	17695832	NA	NA	Muslim	3 months	19	41	14	24	21	142
22	A.S	55	Male	17657436	12th pass	Business	Hindu	1 year	11	18	13	17	18	115
23	L.K	57	Male	17554637	10th pass	shop owner	Hindu	7months	13	15	14	16	17	145
24	P	45	Male	17534675	NA	NA	Hindu	4months	19	19	18	13	20	109
25	S.S	54	Male	17345360	Graduate	Teacher	Muslim	8 months	14	20	13	16	17	119
26	M.A	34	Male	17453620	12th pass	NA	Hindu	1 year	12	36	16	26	19	114
27	P.C	47	Male	17342891	8th pass	NA	Hindu	8 months	15	28	18	18	27	145
28	A.A	27	Male	17442563	8th pass	4th garde	Muslim	5months	12	21	19	19	16	118
29	S.S	45	Male	17552324	10th pass	Security guar	Hindu	1year	16	29	14	13	26	118
30	S.G	38	Male	17476325	12th pass	4th grade	Hindu	7 months	18	16	17	15	26	133
31	R.J	36	Male	17543721	NA	NA	Hindu	4 months	14	23	12	17	13	111
32	A.G	47	Male	17465308	12th pass	Teacher	Hindu	5months	17	28	11	13	28	142

Sheet1 Sheet2 Sheet3

32	A.G	47	Male	17465308	12th pass	Teacher	Hindu	5months	17	28	11	13	28	142
33	R.R	53	Male	17354637	10th pass	Army	Hindu	1 year	19	17	16	18	25	116
34	S.G	29	Male	17543672	5th pass	Salesperson	Hindu	5 months	13	16	14	25	26	145
35	S.S	25	Male	17420352	Graduate	Business	Hindu	8months	15	10	19	13	28	116
36	G.S	35	Male	17405738	NA	Salesperson	Muslim	3months	18	15	10	15	13	118
37	S	40	Female	17569087	12th pass	NA	Hindu	5 months	11	14	21	21	19	114
38	T.K	27	Female	17435809	10th pass	Salesperson	Hindu	6months	17	18	16	14	14	152
39	G.G	60	Female	17439680	NA	NA	Muslim	3months	19	24	14	17	11	117
40	R	65	Female	17538521	NA	Housewife	Hindu	1 year	13	28	25	25	26	117
41	A	32	Female	17544249	8th pass	Housewife	hindu	6months	6	17	9	6	12	101
42	S.K	21	Female	17545678	12th pass	Teacher	Hindu	2 years	22	33	25	25	27	128
43	Y.Lkr	26	Female	17361943	12th pass	shop owner	Christian	2 years	12	33	24	13	21	111
44	A	41	Female	17531237	BA	Teacher	Hindu	1 year	22	36	18	14	28	119
45	O.R	23	Female	17455661	Graduate	Student	Christian	6 months	12	27	9	19	28	144
46	P	38	Female	17455186	MA Hindi	Teacher	Hindu	2 years	18	30	15	12	19	123
47	M	48	Female	17361947	NA	Housewife	Muslim	9months	17	42	19	18	24	129
48	LW	55	Female	17361931	NA	housewife	Hindu	6 months	20	18	16	15	25	115
49	N	26	Female	17337819	NA	Housewife	Muslim	5 months	12	38	18	14	21	105
50	R	31	Female	17461371	NA	House help	Hindu	1 year	17	26	14	13	13	112
51	F	23	Female	17354326	12th Pass	Parlour	Muslim	8months	15	28	27	15	23	117
52	M.K	48	Female	17654732	NA	House help	Hindu	1 year	17	31	6	9	16	110
53	N.R	24	Female	17547390	12th pass	Sales perso	Hindu	4 months	20	23	11	12	14	122
54	N.G	31	Female	17452743	8th pass	House help	Hindu		21	15	14	15	17	122
55	R.B	26	Female	17568490	NA	Housewife	Hindu	1 year	13	31	15	13	20	114
56	Dv	35	Female	17324170	NA	Housewife	Hindu	6months	17	26	13	18	25	114
57	N	21	Female	17432195	Graduate	Student	Muslim	1 year	16	31	16	19	29	106
58	R.S	28	Female	17532851	12th pass	Teacher	Hindu	5 months	18	35	21	15	16	116
59	R	56	Female	17425831	NA	Housewife	Muslim	6 months	12	26	19	23	25	111
60	C	24	Female	17568423	NA	Housewife	Hindu	6 months	14	32	23	15	18	118
61	VV	45	Female	17342801	NA	Housewife	Hindu	2 years	12	23	13	19	17	136
62	N.A	36	Female	17328194	BA	Teacher	Hindu	1 year	17	28	14	14	14	112

Sheet1 Sheet2 Sheet3

62	N.A	36	Female	17328194	BA	Teacher	Hindu	1 year	17	28	14	14	14	112
63	Z	52	Female	17361935	NA	Housewife	Muslim	6 months	20	29	24	21	28	103
64	R.C	45	Female	17543921	8th pass	Housewife	Hindu	9 months	24	45	7	10	13	136
65	T.S	47	Female	17643210	5th pass	Housewife	Hindu	5 months	24	18	14	11	11	123
66	S	42	Female	17435721	NA	House help	Hindu	1 year	15	13	5	8	15	116
67	R	23	Female	17345820	BA	Student	Hindu	7months	14	19	15	13	19	124
68	G	25	Female	17428940	12th pass	Beautician	Hindu	1 year	17	18	13	14	23	123
69	R	34	Female	17324590	NA	House help	Hindu	1 year	18	41	18	18	21	122
70	S.K	35	Female	17361937	5th Pass	Housewife	Muslim	2 year	18	27	16	20	25	99
71	Sv	58	Female	17403284	NA	Housewife	Hindu	4 months	12	13	14	13	14	116
72	GD	59	Female	17490832	NA	Housewife	Hindu	10months	12	15	17	16	19	118
73	S	28	Female	17482905	12TH pass	Housewife	Muslim	1 year	19	24	13	17	18	111
74	S	47	Female	17534627	NA	Housewife	Hindu	11 months	15	15	10	5	12	123
75	P.J	23	Female	17635280	Graduate	Student	Christian	6months	11	21	10	11	16	136
76	SV	61	Female	17635489	NA	Housewife	Hindu	5months	18	14	16	18	19	119
77														